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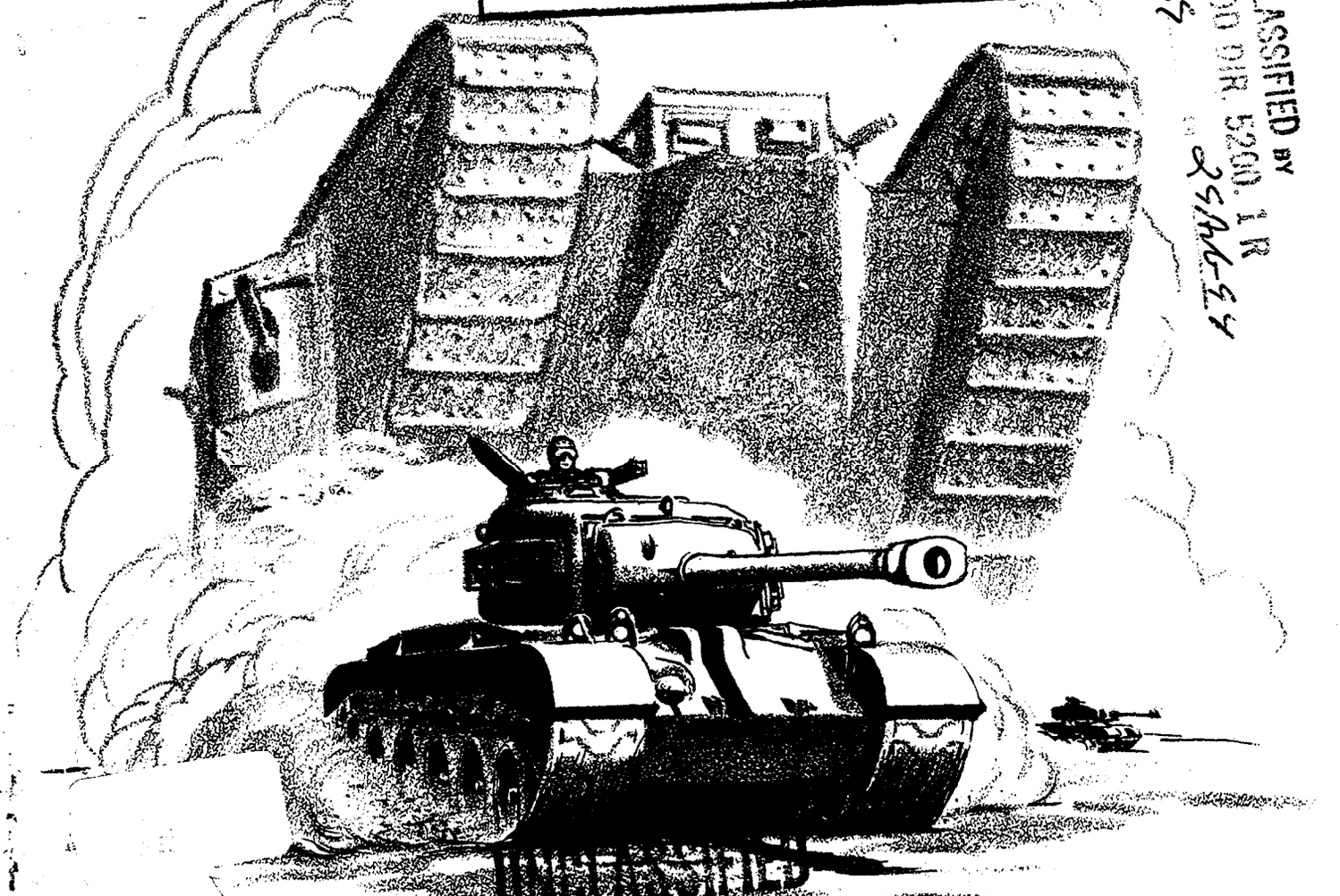
Plan for The Employment of an Armored Corps in the Balkans



A RESEARCH REPORT

Prepared at
THE ARMORED SCHOOL
Fort Knox, Kentucky
1951 - 1952

A PLAN FOR THE EMPLOYMENT OF AN ARMORED CORPS IN THE BALKANS

A RESEARCH REPORT PREPARED

BY

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CHAPTER 1
INTRODUCTION

Primary to the development of any plan for military operations is, if not already known, the determination of who will be the enemy. This is necessary since all combat has as its purpose the destruction of the enemy and his will and means to fight. The Soviet Union is the only nation presently capable of challenging by outright aggression the economic, political, and moral leadership of the UNITED STATES. Inasmuch as she currently is engaged in open conflict with the Western Powers by all available means short of armed warfare, we can accurately consider the SOVIET UNION and her communist neighborn as "the enemy."

Once hostilities have commenced it becomes necessary to initiate planning which has as its objective the launching of a counterstroke to decisively defeat the enemy. The decision as to geographically where and when the military forces of democracy should undertake a major counteroffensive is one for the highest level of governments, involving military, political, economic, sociologica, and many other considerations. Of these, only the first is of primary concern to the Armed Forces of the UNITED STATES. The military advantages accruing to our government must be carefully weighed se as to propose for adoption that course of action which will defeat the enemy in the shortest possible time and, even more important, with a minimum expenditure of human lives, natural resources and finances.

It is not within the means of the writers to assess and compare the advantages of all available courses of action. One purpose is, however, to present in general terms the desirability of one possible operation; namely, invasions of the eastern MEDITTERRANEAN coast in order to secure the land approaches to the DARDANELLES and BOSPORUS so as to permit naval operations in the BLACK SEA and future landings in the UKRAINE and/or the CAUCASUS.

A second purpose is the presentation of a plan for the employment of an armored corps in the exploitation from a beachhead area in the BALKANS. The operation is an integral part of the overall plan as outlined in the preceding paragraph. The corps is charged with the mission of exploitation within its zone of action to secure crossings over the DANUBE RIVER and the capture of the BLACK SEA ports of VARNA and CONSTANTA.

A third and final purpose is to determine the feasibility of the employment of major armored units in the EASTERN BALKAN area.

The military reader might ask, "Of what concern are these things to me since the Army as well as the other military services have staff divisions whose mission is the development of strategic plans to be carried out against likely enemies of the future?" Although the latter portion of the above statement is true, the professional army officer must think and study in terms of the military future. Recent statements of US and Allied leaders as carried by the press disclose that war between the Communist and Western Powers is considered a distinct possibility during the

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coming years. Thus it is our inherent duty to become knowable of things communist. These include such subjects as the theory, teachings, methods, and objectives of communism. Others, less abstract, are the organization, tactics, and weapons of their military forces; the advantages and weaknesses of her geographical position; and her economic strength and concentrations wherein they exist. The plan outlined herein is constructed from an analysis of the latter type of information as it relates to one small sector of the communist periphery.

Many of the fundamental facts essential to the planning phase of an operation are, at this time, more conjecture. Only the first two of the considerations of mission, terrain, enemy, and friendly forces can be determined; and the former may only be established in its broadest sense--the destruction of the enemy and his will to fight. Consequently, to prepare the plan under discussion it was necessary to make certain basic but far-reaching assumptions. These are: a. An enemy order of battle believed to be reasonable according to the general situation outlined in the subsequent chapter; b. Friendly forces, as to type and quantity, as required to accomplish the operation. Logistical requirements have not been considered since they are outside the scope of this report. The primary consideration, therefore, throughout the preparation of this plan is the existent terrain in the theater of operations.

Available terrain information relating to the EASTERN BALKANS is, in most part, general in nature and in a number of instances contradictory. This was found to be particularly true in the case of

road structure and conditions throughout EASTERN BULGARIA. It is believed that little can be done to correct this situation until outbreak of hostilities, at which time aerial photography and other intelligence sources should supply most of the required information.

CHAPTER 2

GENERAL SITUATION

World situation. Certain strategic and tactical conditions must exist if the proposed plan is to be successfully completed. Additional circumstances are desirable but not absolute prerequisites. The world situation described below causes, affects, or infers the existence of these conditions and thus represents a means of presentation. In addition, it affords realism to a military plan which otherwise would suffocate in its own vacuum.

The military forces of the SOVIET UNION and its satellites control and/or physically occupy all of WESTERN EUROPE with the exception of SPAIN and the BRITISH ISLES. The MIDDLE EAST, including the SUEZ CANAL, as well as INDIA and SOUTHEAST ASIA have been conquered. The EAST INDIES, JAPAN, and other major PACIFIC ISLANDS are under the control of the Allies. The only areas of major ground action at this time are in NORTH AFRICA and along the PYRENEES.

The situation described above prevailed primarily because of factors which existed in favor of the Allies. These are:

a. Allied naval supremacy which was the principal means of preventing the capture of the BRITISH ISLES, the EAST INDIES, JAPAN, and other strategic islands along the periphery of EUROPE and ASIA.

b. A sea entrance to the Mediterranean remained under the control of the Allies thus facilitating logistical support of combat forces operating in NORTH AFRICA and SPAIN.

c. Allied air superiority. Initially the balance of air power weighed in favor of the Communists. Only recently have the Allies gained a decided edge in this respect.

d. Over extension of the enemy's forces and his lines of communications as a result of the vast areas captured and forcibly subjugated by the SOVIET UNION and its satellites.

e. A favorable ratio of atomic bomb production by the Allies, both tactical and strategic. Atomic weapons efficiently utilized by the Western Powers have drastically reduced the offensive capabilities of the enemy.

As long as these factors continue to exist in favor of the Allies, operations in the EASTERN MEDITERRANEAN are within the capabilities of the Western Powers. Desirable but not mandatory conditions which would have facilitated a successful maneuver are:

a. A decrease in Communist war production particularly in EUROPEAN RUSSIA and EASTERN EUROPE as a result of Allied strategic bombing;

b. Significant partisan activities against the enemy in the area of contemplated operations.

Recent Eastern Mediterranean operations. The Allied Mediterranean Theater Commander recently was directed to invade the EASTERN MEDITERRANEAN coast during April or May 195_ in order to secure the land approaches to the DARDANELLES and BOSPORUS so as to permit naval operations in the BLACK SEA and future landings in the UKRAINE and/or the CAUCASUS.

The principal advantages of the directed operation were determined to be:

a. Maximum utilization of Allied naval supremacy.

b. The most direct route to the major industrial areas of the SOVIET UNION--the UKRAINE and the CAUCASUS.

c. A direct attack against the SOVIET UNION, the guiding force of communist aggression.

The primary objection to the operation was the vulnerability of Allied ships as they passed through the narrow passages leading to the BLACK SEA.

To accomplish the assigned mission the Second Allied Army made a landing along the southern coast of TURKEY on 1 May 195_. Build-up in the beachhead area continued until 14 June, at which time a major offensive was launched in order to capture by 28 July the Turkish land approaches to the DARDANELLES and the BOSPORUS.

CHAPTER 3

STRATEGIC INTELLIGENCE ANALYSIS OF THE BALKANS

Definition. The BALKAN PENINSULA is the easternmost of the three great peninsulas of SOUTHERN EUROPE. It is named from the BALKAN MOUNTAINS which run east and west across BULGARIA in the center of the peninsula. The BALKANS are generally considered to be that part of EUROPE which lies south of a line drawn from the head of the ADRIATIC SEA to the mouth of the DANUBE, with the SAVA and DANUBE RIVERS forming its natural northern boundary. It includes YUGOSLAVIA, RUMANIA, BULGARIA, ALBANIA, GREECE, and EUROPEAN TURKEY, although RUMANIA and part of YUGOSLAVIA lie north of the SAVA-DANUBE RIVER line.

Historical background. This area in ancient times was divided into five parts. The northern section was known as DACIA, the east central as THRACE, the west central as ILLYRIA, and to the south were MACEDONIA and GREECE.

The peninsula was first united under Roman rule. When the eastern outposts of the Roman Empire began to crumble, there began a series of invasions by the Visigoths, Ostrogoths, Huns, Avars, Cumans, and Pechenegs. These were migrant peoples, and they left little or no trace of their presence in the area.

In the sixth century the Slavs moved south of the DANUBE RIVER in great numbers. They succeeded in impressing their language and culture upon the remnants of the peoples living there. The

Asiatic Bulgars moved into the peninsula in the second half of the seventh century, but they were soon absorbed by the Slavs.

The Ottoman Turks appeared on the Balkan scene in the fourteenth century and destroyed the BULGARIAN STATE by a series of victories on the MARITSA RIVER. They then defeated the Serbs on the Field of the Blackbirds at KASSOVA in 1389. They also subjected to their rule GREECE, BOSNIA, now part of YUGOSLAVIA, and the RUMANIAN principalities north of the DANUBE during the fifteenth and sixteenth centuries. With the exception of the inaccessible regions of the BLACK MOUNTAINS (MONTENEGRO, now part of YUGOSLAVIA) and the ALBANIAN highlands, whose fierce tribesmen could not be subdued, the Turks dominated the entire BALKAN peninsula for over four centuries. During this period the Ottoman Empire was one of the best organized and militarily strong states in the world. Even though occupied and governed by the Turks for over four centuries the BALKAN Christians retained their culture and their religion. The Turks made no attempt to denationalize or assimilate them.

With the decline in power of the Ottoman Empire a struggle began among the EUROPEAN powers for territory and influence in the BALKANS. RUSSIA supported the efforts of the BALKAN peoples to throw off Turkish rule and gain independence. ENGLAND attempted to bolster TURKEY in order to halt the advance of the Russians.

During the nineteenth century there was a series of revolts and wars in the BALKAN PENINSULA with sporadic intervention by the European powers. GREECE was the first to gain its independence in

1832. At the Berlin Congress of 1878 the independence of SERBIA, RUMANIA, and MONTENEGRO was recognized. BULGARIA was next to declare its independence in 1908. During the First Balkan War in 1912 the Turks were expelled from all but the southeastern corner of the BALKAN PENINSULA. ALBANIA was established as an independent state at this time.

Some of the BALKAN STATES had aspirations to parts of the HAPSBURG EMPIRE, and this played a significant role in bringing on World War I. In the war BULGARIA joined the Central Powers while SERBIA, GREECE, and RUMANIA fought on the side of the Allies.

The BALKAN STATES became economically and politically dependent upon GERMANY during the world economic crisis of the 1930's. They were forced into this position because GERMANY was the only available market for their exports. Attempts were made to establish economic and political cooperation between the BALKAN STATES, but these attempts were all doomed to failure. Due to interior territorial disputes, lack of industries and raw materials, GERMANY brought the BALKAN STATES under its domination before and during World War II with ease.

The notable campaigns in the BALKAN PENINSULA during World War II were the Italian-Greek struggle in SOUTHERN ALBANIA in 1940-1941, GERMANY'S lightning conquest of YUGOSLAVIA and GREECE in April 1941 (including the defeat of a British Expeditionary Force in GREECE), and the RUSSIAN drive into the heart of the peninsula through RUMANIA in 1944.

The entire BALKAN PENINSULA, with the exception of GREECE, came under RUSSIAN domination. Local governments were formed and each was communist dominated. At the present time GREECE is the only country in the BALKANS that is not communist, although YUGOSLAVIA is not a member of the Cominform.

The chief occupation of the BALKAN peoples is farming. The main crops are cereals of which they have produced surpluses for export to the detriment of their own diet and general welfare.

The principal religions practiced by the BALKAN peoples are Orthodox, Roman Catholic, and Mohammedan. For centuries the Orthodox Christians were under the jurisdiction of the Greek Patriarch at CONSTANTINOPLE. They have broken away from the Greek Orthodox Church and have formed independent Orthodox churches throughout the BALKANS. The greatest number of Mohammedans are found in ALBANIA where the only successful conversion to Islam was accomplished during the reign of the Ottoman Empire. (End UNCLASSIFIED)

(BEGIN SECRET) Location and strategic importance. (Map, Figure 1) The military significance of the BALKANS arises from its geographic position in relation to the SOVIET UNION, the MEDITERRANEAN SEA, the SUEZ CANAL, and the MIDDLE EAST. This area for the most part is a peninsula extending about 1200 miles from west to east and approximately 1050 miles from north to south. The island of CRETE, its southernmost point, is 500 miles from the SUEZ CANAL; ISTANBUL is 1700 miles from the large oil fields on BAHREIN ISLAND; TRIESTE is about 800 miles from LONDON. BELGRADE is approximately 1100 miles from MOSCOW, 1400 miles from BAKU, the refining center of the SOVIET'S

major petroleum region, and 660 miles from KIEV, the capital of the industrial UKRAINE. The BALKANS contain the "crossroads" of the world; that is, the intersection of the only direct land route between EUROPE and the NEAR EAST and the narrow, 200-mile-long water route connecting the land locked BLACK SEA with the MEDITERRANEAN SEA.

There are five strategic areas in the BALKANS. They are: a. The TURKISH STRAITS, b. SALONIKA, c. ATHENS, d. BELGRADE-NIS, and e. TRIESTE-FIUME. Although CRETE is militarily important as a potential site for bomber bases, it is not considered a strategic area. The military significance of the STRAITS area is derived primarily from its controlling position with respect to: a. The vital water route from the BLACK SEA to the MEDITERRANEAN SEA, and b. The historic land routes from EUROPE to ASIA across the DARDANELLES and the BOSPORUS. Its importance is enhanced considerably by its geographic location with reference to the EASTERN MEDITERRANEAN SEA and the SUEZ CANAL.

The STRAITS area contains: a. Major defense installations of TURKEY, b. An important lodgment area on the south shore of the SEA of MARMARA, c. A large part of Turkish industry, d. ISTANBUL, the principal port, the chief commercial, cultural, and economic center of TURKEY, and e. GOLCUK, the chief naval base of TURKEY.

SALONIKA is significant as a communications hub and port. Five main roads and four railroads converge here. Pier and wharfage

facilities can handle about 60,000 tons of cargo a week. Landing areas suitable for debarkation of troops and materiel lie relatively close to the city. In addition, several emergency airfields capable of supporting attack bombers and fighter type aircraft lie within 10 miles of SALONIKA.

The ATHENS area contains the terminal point of a rail line connecting the AEGEAN SEA with CENTRAL and WESTERN EUROPE. For centuries, ATHENS has been the cultural, economic, and political center of GREECE. Associated with ATHENS is PIRAEUS, the only port in GREECE with modern installations suitable for a large-scale turnover. PIRAEUS also is the center of the most important industrial, armament, and public-utility plants in GREECE.

The BELGRADE-NIS area is a focal point for natural routes. BELGRADE, the capital city, and commercial, industrial, and transportation center of YUGOSLAVIA, is situated on a triangular-shaped ridge (with 400-600 feet altitude) at the confluence of the SAVA and DANUBE RIVERS, overlooking the adjacent plain. Three natural routes, augmented by a number of main railroads and highways, converge on the city. BELGRADE also is an important river port. NIS, a focal point for three natural routes, is at the junction of rail and road routes linking BELGRADE and CENTRAL EUROPE with SOFIA and ISTANBUL on the one hand, and SALONIKA on the other.

The strategic importance of the TRIESTE area emanates from: a. Its position at the head of the ADRIATIC SEA, and b. The international political implications brought about by the peace treaty

of 1947. To a considerable extent, TRIESTE has been one of the principal ports for the maritime trade of AUSTRIA, HUNGARY, NORTHERN YUGOSLAVIA, and CZECHOSLOVAKIA. It is a major industrial center specializing in shipbuilding. The city of FIUME nearby has good port facilities, and its chief industrial activities include shipbuilding and the manufacturing of torpedoes.

Coastal terrain and landing areas. (Map, Figure 2) Along the entire coastline of YUGOSLAVIA and GREECE, amphibious operations would be handicapped by: a. The scarcity and small size of beaches, and b. The unfavorable nature of exits inland through the rugged mountain barriers. Water depths, however, along the ADRIATIC and AEGEAN coasts are sufficient to permit close naval support of any landings.

Inland terrain. (Maps, Figures 3 and 4) There is little uniformity and continuity of relief features suitable for large-scale military operations. Much of the area is either mountainous or has rugged relief. Movement, particularly from east to west, is handicapped by a succession of mountain barriers. The most prominent of these barriers are: a. The rugged mountains of YUGOSLAVIA, ALBANIA, and WESTERN GREECE, b. The mountainous fingerlike peninsulas which jut from GREECE into the AEGEAN SEA and severely compartment the country, c. The RHODOPE MOUNTAINS (hereafter referred to as the SOUTHERN HIGHLANDS) angling eastward into TURKEY, d. The BALKAN MOUNTAINS which curve from the Iron Gate of the DANUBE RIVER eastward to the BLACK SEA, and e. The CARPATHIAN MOUNTAINS, which swing westward in a semicircle and join the EASTERN ALPS.

There are few natural breaks that favor easy movement through these mountain barriers; but in places, narrow passes and valley corridors permit channelized movement.

In YUGOSLAVIA, the barrier nature of the mountains is enhanced by the 50 to 100-mile-wide belt of "KARST" (a lime stone region marked by sinkholes and interspersed with abrupt ridges, projecting rocks, caverns and underground streams). Here, ridges, plateaus, and escarpments rise one behind the other inland from the coast. Non-navigable streams have cut precipitous gorges into the limestone, but these are too narrow and rocky for roadways. Inland from the "KARST" belt is a hilly area where valleys are wider and more open, water supply is fairly abundant, and cross-country movement less restricted.

The mountains of GREECE are dry and almost treeless. Roads are few, and movement from one lowland area to another is rendered difficult by the mountain masses which separate them. The most important of these lowlands are: a. The basins of the lower STRUMA and BARDA RIVERS, b. The plain surrounding LARISA, and c. The Plains surrounding ATHENS. Their value is enhanced by the ease of access by sea and their suitability for use as drop zones.

The SOUTHERN HIGHLANDS, reaching heights of 6000 to 9000 feet, consist of a triangular shaped mass of block mountains dissected by narrow, steep-sided valleys which are deepened by rushing streams. These mountains form a bleak inhospitable region with few practicable routes. Important highways skirt, but do not cross them.

The east-west trending BALKAN MOUNTAINS, from 12 to 30 miles wide, consist of numerous masses of mountains, some of which rise 5,000 to 6,000 feet above sea level. Despite the elevation, the rounded, wooded ridges and dome shaped summits of the BALKAN MOUNTAINS are not difficult barriers to human movement. This mountain belt is broken by several passes and is crossed by many usable roads. The SHIPKA PASS (4575 feet) is the most significant. Although the slopes incline gently northward toward the DANUBE, rivers have cut deep gorges which make east-west communication difficult.

WESTERN TURKEY is characterized by narrow valleys and lake plains separated by steep-sloped ridges with a general east-west trend. Deltoid plains of large rivers and narrow valleys of smaller streams form corridors which offer routes of penetration inland from the sea. Flanking rocky headlands restrict movement inland to the river and stream corridors.

The plain centering on BELGRADE is the most suitable for large-scale operations. Elsewhere the mountainous, hilly nature of the terrain and transportation difficulties would handicap, but not prevent, the employment of large forces.

Rivers and streams. (Map, Figure 3) Major barrier streams are the DANUBE RIVER and its larger tributaries, the SAVA, DRAVA, TISA, and MORAVA. All are subject to extensive flooding, particularly in the spring. High water levels normally occur between April and June; some streams remain swollen until early August. Autumn rains frequently

may result in flash floods. Low water levels normally occur on most streams between October and February. The middle DANUBE and its tributaries are generally closed to navigation during January and February by ice. In general, water supply is more abundant in the northern part of the BALKAN area than in the southern part.

Roads and railroads. The road and rail net in general is better developed in the Soviet Satellite countries than in the rest of the BALKAN area. Navigable waterways play a very important role in the transportation system of this area . Highways, in general, are poor. Especially vulnerable on all highways are the bridges over wide rivers and, in some places, defiles in the mountainous areas.

Climate. The western and southern coastal areas have a distinct winter rainy season and a dry summer season. Cloudy skies and heavy showers that yield moderate amounts of rainfall are common in November and December, but there are cloudless periods. Snowfall is uncommon along the coastlines. Temperatures below freezing throughout the day are unusual. The Bora, a bitterly cold, violent and destructive wind which blows out from the interior at times during the winter would handicap operations along the YUGOSLAV coast.

Along the coast, summers are long, very hot, and almost rainless and cloudless. During this season of drought, small streams dry up, and the soil becomes dusty.

Air operations in the coastal belt are rarely hampered by unfavorable weather conditions; however, the most favorable period for such operations is from April through October. Occasional spells of unfavorable flying weather occur in December and January.

Weather conditions from May through September are more favorable for ground operations than during other parts of the year. Sea and weather conditions favor landing operations from May through September.

In the area inland from the south and west coasts, winters are cold, and temperatures are sometimes below freezing for several days at a time. Snow usually covers the ground for varying periods in January and February. December is the cloudiest month; fog is most frequent in the winter. During the spring thaw and rains, the ground is muddy, and the streams are at high water level.

In the interior, summers are hot and temperatures frequently exceed 100 degrees F. Well distributed precipitation averages 15 to 30 inches annually. Maximum rainfall occurs in May or June. These showers may cause destructive floods and muddy ground, however evaporation causes the ground to dry rapidly. During the intervening rainless periods, particularly in the drier late summer, the ground and even swampy sections may become hard, dry, and dusty. Cloudiness is least in summer, particularly in August.

Airfields. At present there is one air base at ATHENS, GREECE, capable of sustaining B-29 aircraft operations. There are numerous airfields in the BALKAN area that could with relatively

little improvement, accommodate medium bombers. In addition to these potential air bases, there are some local areas where rapid construction of additional airfields is possible.

Air bases on CRETE are within easy striking distance of the BALKANS and the TURKISH STRAITS.

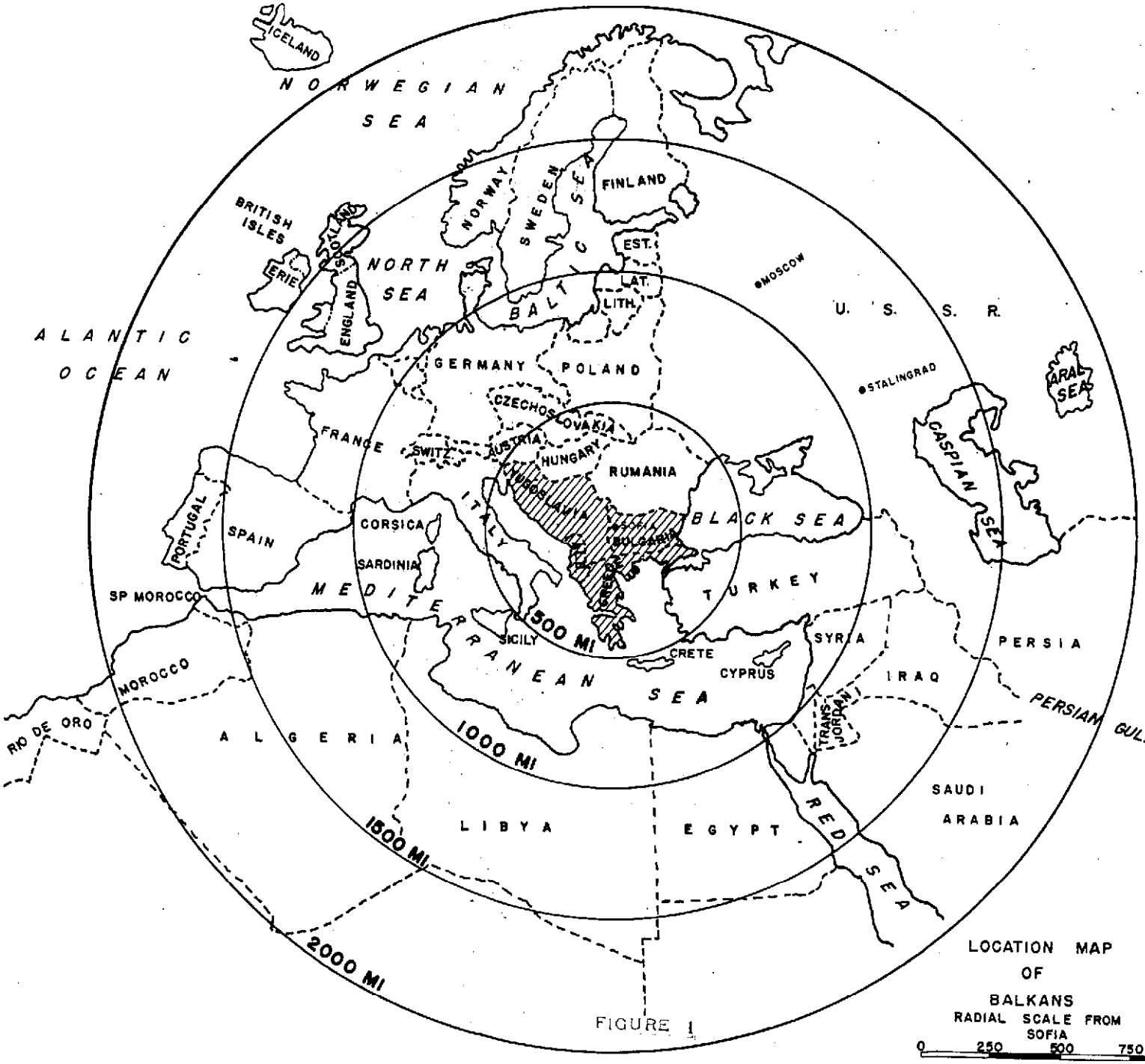

FIGURE 1

LOCATION MAP
OF
BALKANS

RADIAL SCALE FROM SOFIA

0 250 500 750

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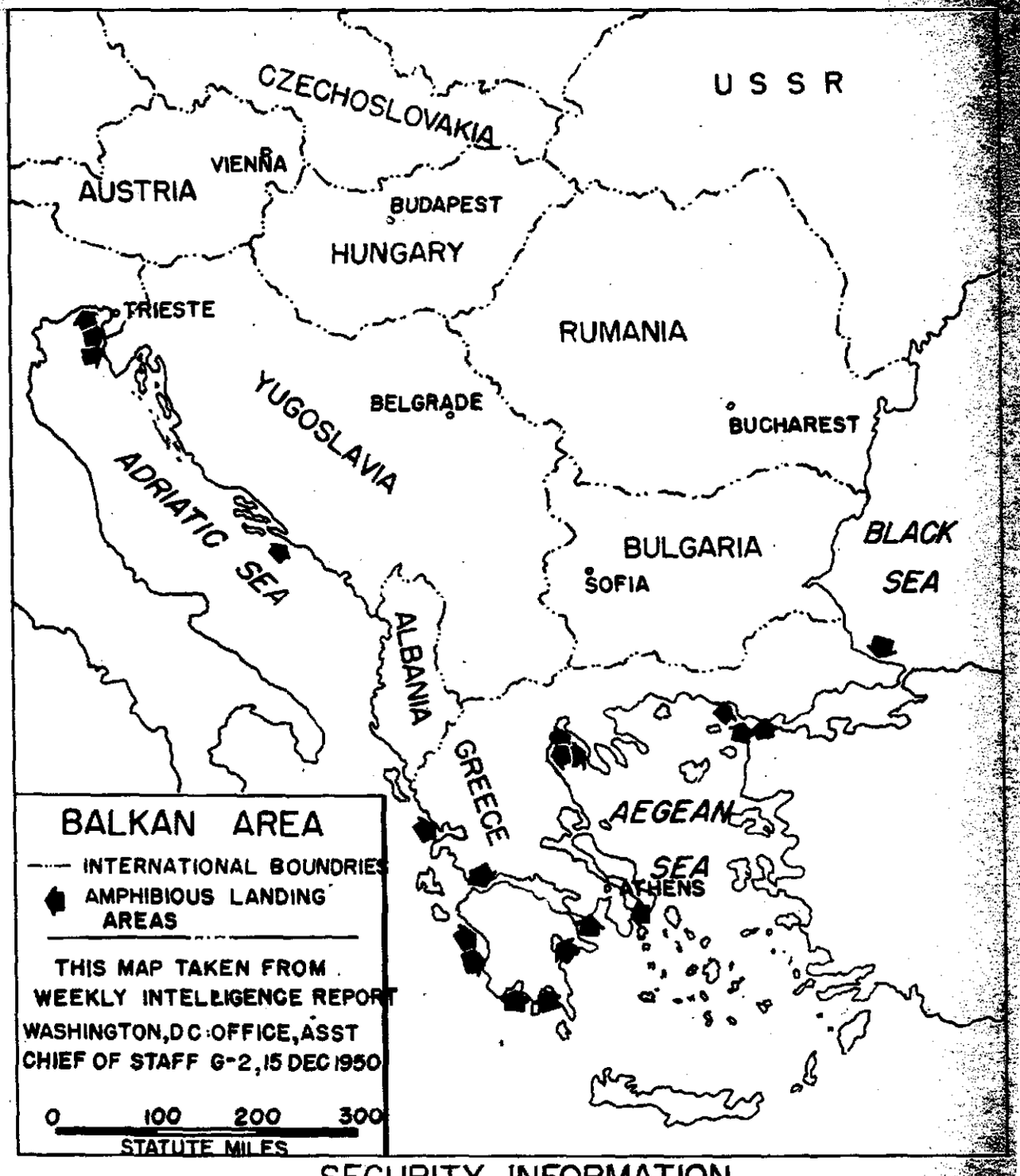

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FIGURE 2

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BALKAN AREA

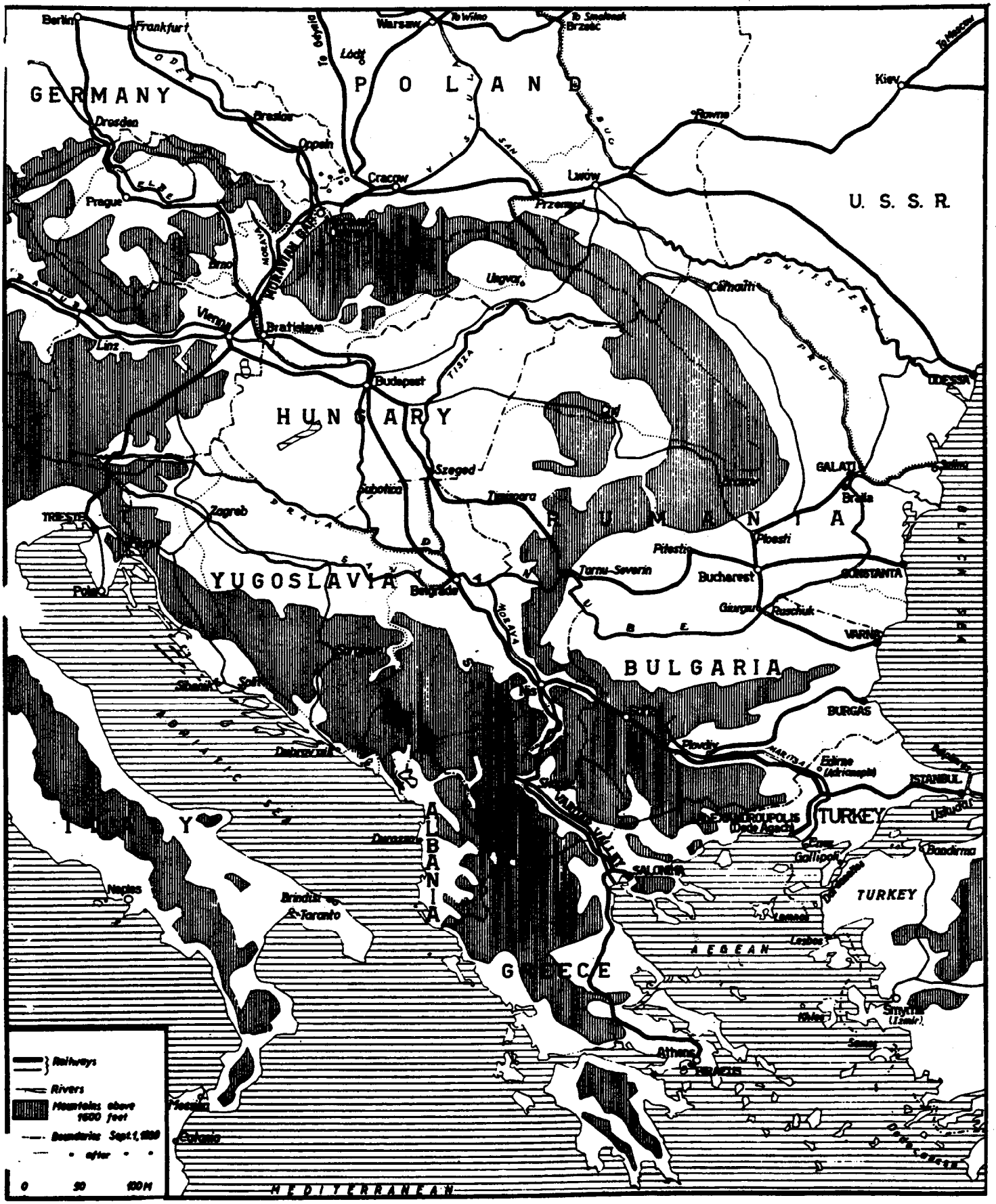


FIGURE 3

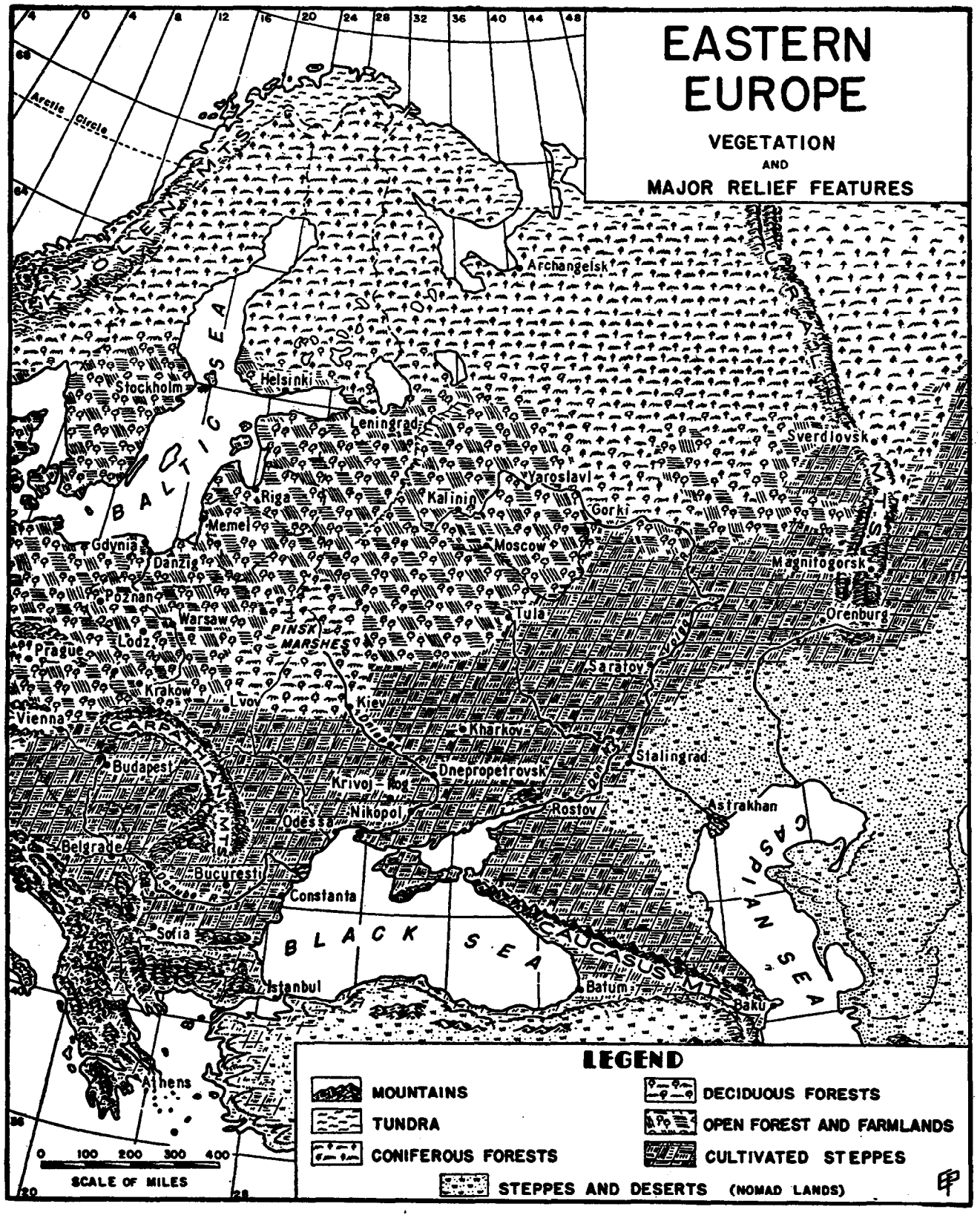

EASTERN EUROPE
VEGETATION
AND
MAJOR RELIEF FEATURES
Arctic Circle
BALTIC SEA
BLACK SEA
CASPIAN SEA
CARPATHIAN MTS.
CAUCASUS MTS.
URAL MTS.
PINSK MARSHES
Archangelsk
Helsinki
Stockholm
Leningrad
Sverdlovsk
Yaroslavl
Riga
Kalinin
Gorki
Memel
Moscow
Gdynia
Danzig
Magnitogorsk
Poznan
Warsaw
Tula
Orenburg
Lodz
Prague
Saratov
Krakow
Lvov
Kiev
Vienna
Kharkov
Stalingrad
Budapest
Dnepropetrovsk
Krivoj Rog
Nikopol
Rostov
Astrakhan
Odessa
Belgrade
Bucuresti
Constanta
Sofia
Istanbul
Batum
Baku
Athens
0 100 200 300 400
SCALE OF MILES
LEGEND
MOUNTAINS
TUNDRA
CONIFEROUS FORESTS
DECIDUOUS FORESTS
OPEN FOREST AND FARMLANDS
CULTIVATED STEPPES
STEPPES AND DESERTS (NOMAD LANDS)

FIGURE 3A

BALKAN AREA

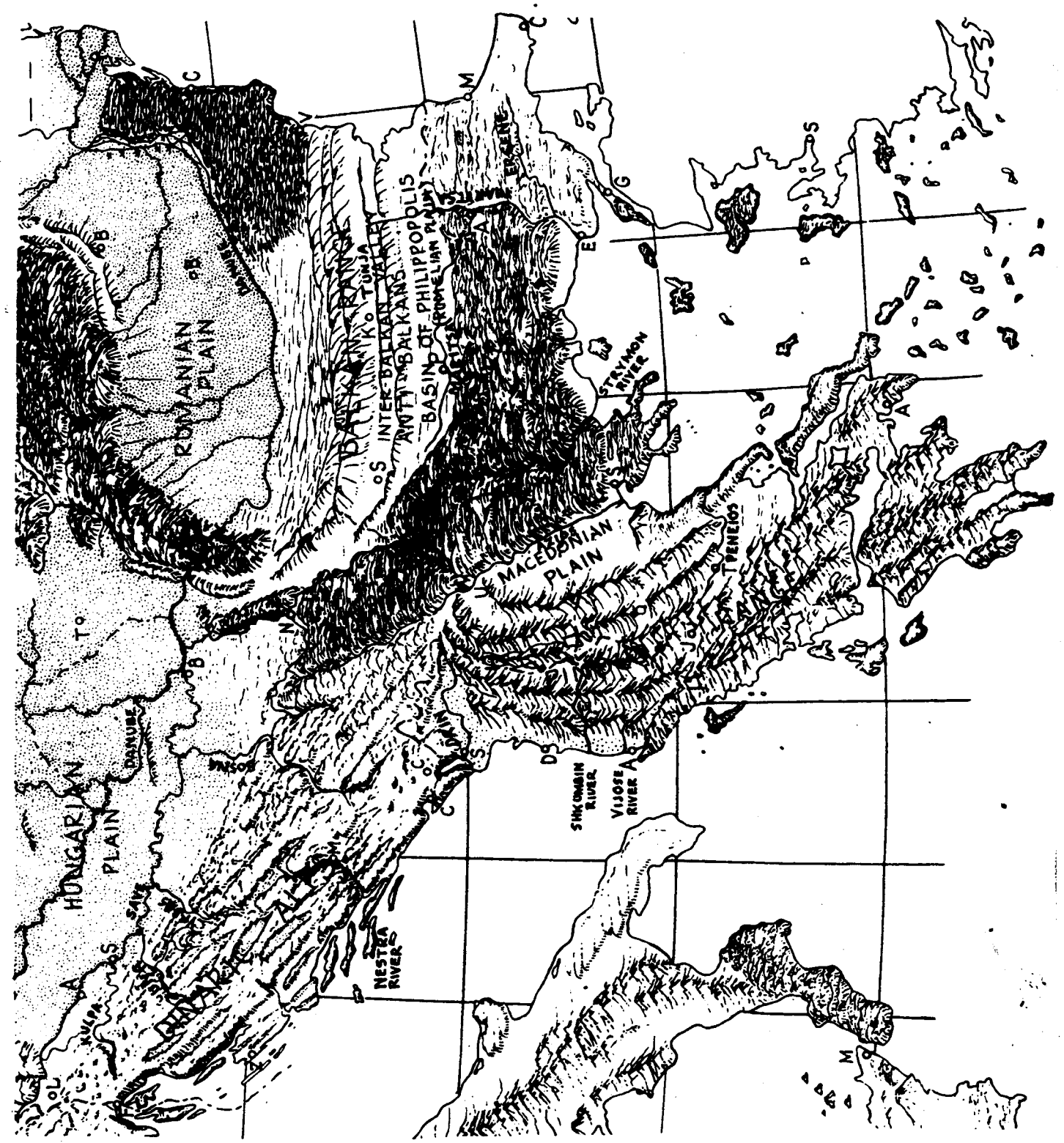
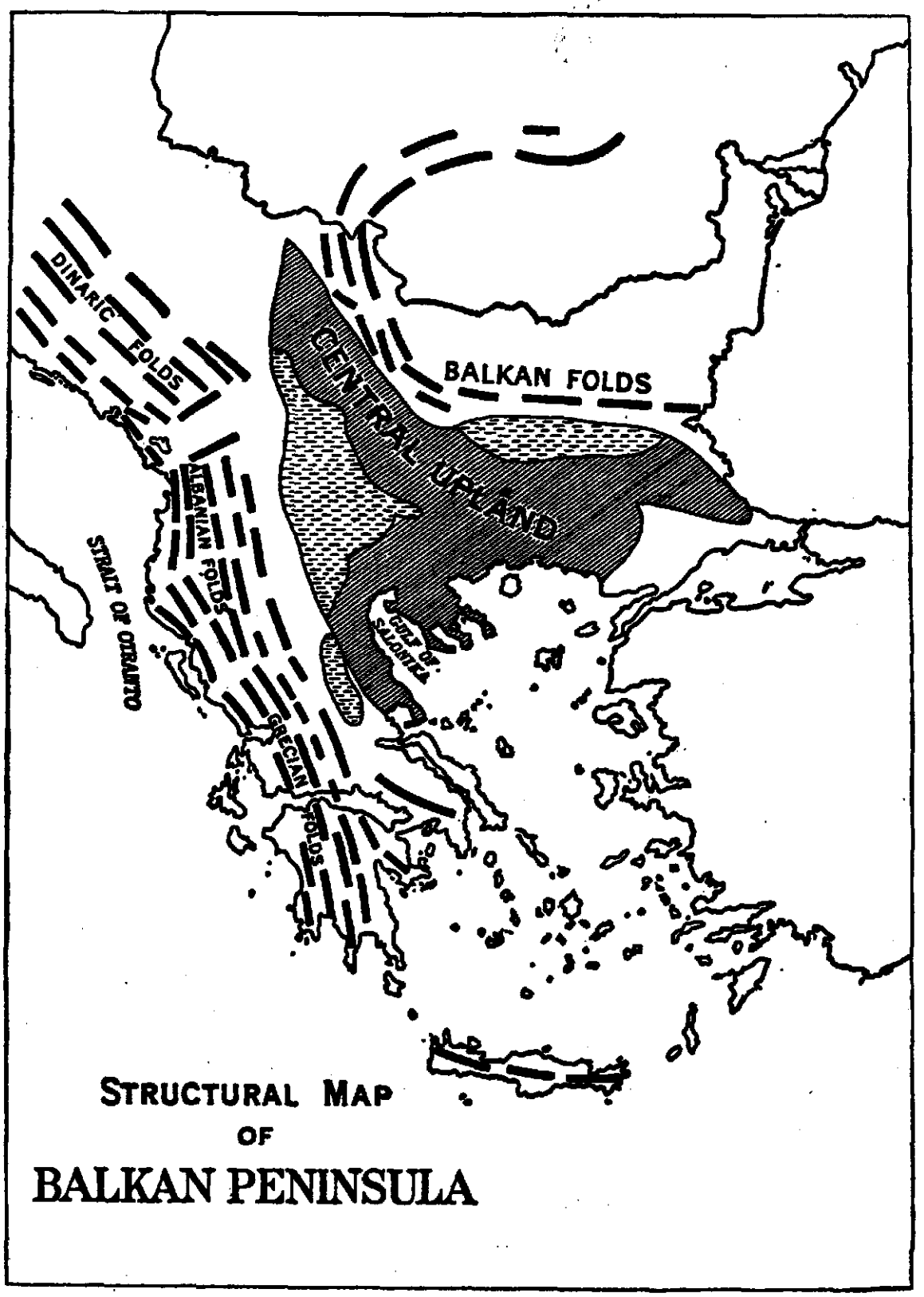


FIGURE 4



A ROUGHLY TRIANGULAR CRUST-BLOCK OF RESISTANT ROCKS FORMS THE CENTRAL UPLAND, WITH YOUNG FOLD-MOUNTAINS TO THE WEST AND TO THE NORTH-EAST. BETWEEN THE TWO, SHOWN BY DOTTED LINES, LIE TRANSITION AREAS, WITHIN WHICH ARE FERTILE BASINS, DUE TO THE SINKING OF FRACTURED MASSES OF ROCK

FIGURE 44

CHAPTER 4

SPECIAL SITUATION

The Commanding General, Allied Mediterranean Theater, ordered the First United States Army to make landings on or about 29 May 195_ along the southern coast of EASTERN GREECE in the vicinity of ALEXANDROUPOLIS to seize and secure a beachhead for future breakthrough operations and exploitation to the north and east. Landings were initiated by the XII and XIV Corps as directed, with XIII Corps in floating reserve. By 15 June Allied troops had reached the line (east to west) MARITSA RIVER-LAVARA-MIKRON DIREION-CHERNICHEVO-LIMETA-TSARINO-SHUMNATITSA-KRISTALLI-POLIARNON-KOPTERON-to the sea. The I Armored Corps commenced coming ashore on 13 June so that by 23 June it was fully prepared for combat operations.

On 15 June the army commander directed the commanding generals of his corps to prepare plans for a major offensive to be launched on 28 June with the purpose of breaking out of the present beachhead area. Missions were assigned as follows:

a. The XII Corps will protect the left (west) flank of the First United States Army by maintaining contact with rear combat elements of XIII Corps (later with those of the I Armored Corps).

b. The XIII Corps will make a penetration of the enemy positions in its sector so as to permit the I Armored Corps to pass through on army order. XIII Corps will then follow the I Armored Corps in order to reduce all enemy resistance within the Corps zone.

c. XIV Corps will advance in the Corps zone in order to secure the European land approaches to the DARDANELLES and the BOSPORUS and capture and secure the port of BURGAS.

d. The I Armored Corps will attack through the XIII Corps on order in order to seize crossings over the DANUBE RIVER in zone of advance and will capture the ports of VARNA and CONSTANTA. (First US Army operations order, appendix I)

CHAPTER 5

A PLAN FOR THE EMPLOYMENT OF THE I ARMORED CORPS

The plan for the employment of the I Armored Corps as presented herein was evolved after careful analysis of all information as it related to the considerations discussed below.

Mission. The I Armored Corps will attack through the XIII Corps on order to seize crossings over the DANUBE RIVER in the corps zone and will capture and secure the ports of VARNA and CONSTANTA. (Appendix I, First US Army operation order)

Intelligence.

a. Terrain and weather. The area from the army beachhead to the DANUBE RIVER within the corps zone is a series of mountains and valleys running west to east. It is divided into five regions from south to north, as follows: a. PLAINS of THRACE, b. SOUTHERN HIGHLANDS, c. CENTRAL DEPRESSION, d. BALKAN MOUNTAINS, e. DANUBIAN TABLELAND. Movement of mechanized vehicles over large portions of the corps zone is generally restricted to roads due to the rugged topography. Forests, which cover about one-third of the area, are normally found on the highlands and along streams. The lower slopes are usually pasture lands, and the valleys and basins are cultivated.

The area of planned operation experiences a continental type climate with warm summers and fairly cold winters. The BLACK SEA coast of BULGARIA has a milder climate. Winter temperatures average 29° F, and summer temperatures average about 73° F. The mean annual

precipitation of the area is approximately 25 inches. Rainfall is fairly evenly distributed throughout the year with the greatest precipitation occurring during the summer months. Visibility is generally good within the corps zone, particularly during the summer. (Appendix II, Terrain and Weather)

b. Road and rail communications. The best roads in the corps zone run from west to east. First class highways cross the corps zone connecting SOFIA with ISTANBUL, VARNA, RUSE, and CONSTANTA. Vehicle routes running south-north are adequate.

In the left portion of the corps zone the route KOMOTINI-KASKOVO-POPOVITSA-STARA ZAGORA-KAZANLIK-TERNOVO-VELA-RUSE is a metalled two-lane road capable of supporting armored units. Crossing the SOUTHERN HIGHLANDS this route encounters steep grades and several defiles. That portion crossing the CENTRAL DEPRESSION is excellent. In the BALKAN MOUNTAINS this route again becomes difficult, but alternate routes are available. After reaching TERNOVO the roads run across flat open country.

In the right portion of the corps zone the route ALEKANDROUPOLIS-EDIRNE-ELKHOVO-YAMBOL-OMORTAG-SHUMEN, and thence north to the DANUBE is one of the best south-north road systems in the BALKANS. This route crosses the SOUTHERN HIGHLANDS on two alternate roads, one through the TUNDZHA VALLEY, and the other from SVILENGRAD to ELKHOVO. Both routes run through some defiles but avoid the steep grades generally found in the area. The route continues

northward over rolling country until it reaches the BALKAN MOUNTAINS. Here, it enters a pass and a gorge which are major defiles. From SHUMEN to the DANUBE RIVER and to the BLACK SEA several roads of modern construction are available.

Railroads in the corps zone are generally poor. The only rail line leading north from the beachhead area runs from ALEXANDROUPOLIS to EDIRNE where it joins the Orient Express line. The latter railroad traverses the corps zone and connects with other railroads in the area. Running south-north through the corps zone is the MOMCHILGRAD-RUSE line extending from the north slopes of the SOUTHERN HIGHLANDS to the DANUBE RIVER. The major portion of this rail line parallels the main highway in the left (west) portion of the corps zone. Lateral lines connect BURGAS with KARLOVO and PLOVDIV and VARNA with RUSE. (Appendix III, Road and Rail Communications)

c. Industrial and population centers. The population centers of the corps zone consist of four major types: road and rail junctions, ports, industrial centers, and agricultural cities. The latter are of no tactical significance. Prominent in the first group are EDIRNE, STARA ZAGORA, GORNA-ORECHOVITSA, SLIVEN, TERNOVO, and SHUMEN. VARNA and CONSTANTA on the BLACK SEA and RUSE on the DANUBE are the major ports of the area. Industry throughout the area is, by American standards, extremely limited and is concentrated in or near the CENTRAL DEPRESSION and the DANUBIAN TABLELAND. (Appendix IV, Industrial and Population Centers)

d. Enemy strength and disposition. Known enemy strength in the Army area is 35 divisions (all types). Of these, 13 are presently in contact. The Soviet divisions, comprising the majority of those available, are estimated to be at 70-80% strength of personnel and equipment and the Bulgarian units are at approximately 90%. It is estimated the enemy can reinforce by D +20 with five divisions and by D + 35 with two rifle corps, one mechanized army, and one artillery corps. Enemy morale and efficiency are considered to be excellent. Communist supplies are considered adequate. The enemy is capable of 200 fighter and 60 bomber sorties daily. (Appendix V, Enemy Strength and Disposition)

Friendly forces. I Armored Corps is composed of three armored and one infantry division with a large number of assorted units in support. Available on call from the First US Army are two parachute regimental combat teams. The 9th Tactical Air Force is supporting the First US Army. A limited number of tactical atomic bombs are available on request for use by the I Armored Corps. (Appendix VI, Troop List, I Armored Corps)

Plan for employment. A plan for the employment of the I Armored Corps is resolved from an analysis of the information summarized above. Two armored divisions will attack abreast to seize crossings over the DANUBE RIVER. The right (east) armored division is to be followed on corps order by a third armored division as far north as SHUMEN. From this vicinity it will attack east and north to capture and secure the BLACK SEA ports of VARNA and [illegible]

CONSTANTA. The infantry division of I Armored Corps initially is held in reserve and is to be prepared to assist in the capture of VARNA and CONSTANTA. Large enemy units defending defiles along the advance will be bombed by tactical atomic missiles. These will be followed by parachute drops of battalion size which will secure the area for passage by the I Armored Corps. (Appendix VII, I Armored Corps operation order)

CHAPTER 6

SUMMARY

A war between the forces of communism and the Western Powers is a distinct possibility during the next few years. After the offensive thrusts of the enemy have been contained, the Allies must launch a decisive counterstroke which will result in the rapid destruction of the Communist's armed forces, thus terminating hostilities. The authors of this study are convinced that the seizure of the DARDANELLES and the BOSPORUS in order to permit later assault landings in the UKRAINE and/or the CAUCASUS offers essential strategic advantages which cannot be found elsewhere. The proposed operation also affords alternate land routes to the same objectives and as such is characterized by extreme flexibility. This is turn adds immeasurably to the principal of surprise.

A plan for the employment of a Corps in the BALKANS has been presented as a portion of the over-all operation. The scheme of maneuver conceived for this corps was only resolved after careful analysis of the mission and available intelligence. (The assumptions of friendly forces available and enemy strength and dispositions were given little consideration). The objectives assigned to I Armored Corps are militarily sound. Their capture would contribute significantly to the success of the present and future operations.

Large armored units can be utilized profitably in the corps offensive. Admittedly, the terrain is rugged and multiple routes of advance are scarce; nevertheless, armor is essential for the rapid seizure of the objectives. Although no research was made of supply requirements and capabilities, the impression was gained that a long, drawn-out battle would be most difficult to support logistically. Offensive operations combining the speed and fire power of armor, the surprise and maneuverability of small airborne units, and the devastating killing effect of tactical atomic weapons are capable of rapid success provided air superiority is maintained over the battle area.

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APPENDIX I

FIRST US ARMY OPERATION ORDER

First US Army
APO 158
151200 June 195_

OPN 6-2

Maps: The BALKANS, 1:250,000; sheets, DRAMA, PLOVDIV, HASKOVO, EDIRNE, BURGAS, AHTOPOL, VARNA, SHUMEN, SLIVEN, TERNOVO, PLEVEN, CRAIOVA, BUCURESTI, CONSTANTA. MIDDLE EAST, 1:500,000; sheets, EDIRNE, ISTANBUL.

1. a. See current G-2 Periodic Reports (Intelligence).

2. a. First US Army will attack at 280430 June 195_ to break out of its beachhead area to seize and secure the European land approaches to the DARDANELLES and the BOSPORUS, seize crossings over the DANUBE in the vicinity of BUCURESTI, capture and secure the ports of BURGAS, VARNA, and CONSTANTA, and be prepared to continue the advance to the northeast or to embark at BLACK SEA ports for future operation.

b. Boundaries:

(1) Between XII Corps and XIII (later I Armored Corps) LOZENGRADLAI (RG09) - ARDINO (RF38) - ASENOVGRAD (RF86) - ROGOSH (RA50) - PESNOPE (RA53) - TROYAN (XM42) - OSEM RIVER (XM42-XG92) - VARNA (XG92) - VARDIM (XH15).

(2) Between XIII Corps (later I Armored Corps) and XIV Corps. SOUPHLI - MARITSA RIVER - MUSABEYLI (RH04) - GOLDERVENT (RH17) - POPOVA (RC10) - PALAUZOVO (RC13) - KOMAREVO (X025) - RISH (X037) - PREDZHA (X058) - DYULGER (X098) - BLACK SEA (XP13).

c. Troops:

(1) I Armored Corps:

1st Armored Division

2d Armored Division

3d Armored Division

1st Infantry Division

(2) XII Corps:

4th Armored Division

2d Infantry Division

3d Infantry Division

4th Infantry Division

(3) XIII Corps:

5th Armored Division

5th Infantry Division

6th Infantry Division

7th Infantry Division

(4) XIV Corps:

6th Armored Division

7th Armored Division

8th Infantry Division

9th Infantry Division

10th Infantry Division

(5) Army Reserve:

8th Armored Division

11th Infantry Division

12th Infantry Division

1st Airborne Command

(a) 21st Airborne Division

(b) 22d Airborne Division

3. a. I Armored Corps:

(1) Attack on order through XIII Corps to seize and hold crossings over the DANUBE RIVER in Corps zone.

(2) Capture and secure ports of VARNA and CONSTANTA.

b. XII Corps: Protect left (west) flank of First US Army by maintaining contact with the rear combat elements of XIII Corps.

c. XIII Corps:

(1) Penetrate enemy positions in corps zone to permit I Armored Corps to attack through on army order.

(2) Follow I Armored Corps in zone to reduce all enemy resistance.

d. XIV Corps:

(1) Seize and hold European approaches to the DARDANELLES and the BOSPORUS.

(2) Capture and secure the port of BURGAS.

e. Airborne Command:

(1) Initially in Army Reserve.

(2) Prepare to make airborne drops along axes of advance of XIII Corps (later I Armored Corps) and XIV Corps to seize and hold defiles until relieved by friendly troops.

(3) 22d Airborne Division and 193d Airborne Regimental Combat Team available on call by XIV Corps. 191st and 192d Airborne Regimental Combat Teams available on call by XIII Corps (later I Armored Corps).

f. Artillery: Following unit attached to I Armored Corps:

261st Field Artillery Group.

g. Engineer: Following unit attached to I Armored Corps:

15th ENGINEER BRIGADE.

h. Air Forces: 108th Fighter Bomber Wing in direct support of I Armored Corps. Tactical atomic bombs available to First U.S. Army - 36 to be delivered on call of corps commanders.

4. Administration: See current administrative order.

5. a. Command Post:

First Army; KOMOTINI.

I Armored Corps; to be reported.

XII Corps; to be reported.

XIII Corps; to be reported.

XIV Corps; to be reported.

b. Axes of Signal Communication; to be reported.

Commanding
First US Army

ANNEXES: (Omitted)

OFFICIAL:

G-3

APPENDIX II

TERRAIN AND WEATHER[1]

This annex presents terrain and weather information pertaining to the zone of advance of I Armored Corps. The area comprises the eastern section of GREECE and BULGARIA, a section of EUROPEAN TURKEY, and the section of RUMANIA south of the DANUBE RIVER.

Terrain. (Map, Figure 5) The EASTERN BALKANS are conveniently divided into five major regions: a. PLAINS OF THRACE, b. SOUTHERN HIGHLANDS, c. CENTRAL DEPRESSION, d. BALKAN MOUNTAINS, and e. DANUBIAN TABLELANDS. Southernmost is the PLAINS OF THRACE which are located in the eastern section of GREECE. They extend from the AEGEAN SEA to the SOUTHERN HIGHLANDS. The SOUTHERN HIGHLANDS region extends from the southwestern border of BULGARIA east to the BLACK SEA. These mountains and hills run east-southeast and are characterized by gorges, steep slopes, rounded uplands, and high passes. The mountains become lower and less rugged toward the east. North of the SOUTHERN HIGHLANDS is the CENTRAL DEPRESSION, a series of basins of varied sizes and altitudes. East of SOFIA the SOUTHERN HIGHLANDS and the BALKAN MOUNTAINS converge thus dividing the CENTRAL DEPRESSION into two sections, with high upland basins to the west and low basins to the east. North of the CENTRAL DEPRESSION the rounded ridges of the BALKAN MOUNTAIN region extend nearly 400 miles from the YUGOSLAVIAN border to the BLACK SEA on the coast of BULGARIA.

These mountains average 18 miles in width. North of PLOVDIV where they reach maximum elevation they are narrowest. The BALKAN MOUNTAINS descend gradually to the DANUBIAN TABLELAND, partly a plateau and partly a hilly area, which extends northward and eastward to end abruptly with sharp cliffs along the DANUBE RIVER and the BLACK SEA.

BULGARIA is a land of moderately rugged mountains, lowlands, highland basins, and low plateaus. Its major features run west to east and form major corridors. Minor features such as passes and valleys run roughly north to south and form more constricted areas.

Most parts of GREECE are mountainous, with scattered small intermountain valleys and basins that have for centuries been areas of settlement. Coastal lowlands, most extensive in the eastern and northeastern regions of GREECE, are separated by hills and mountains. In EASTERN GREECE the southeastern end of the SOUTHERN HIGHLANDS lies between the STRUMA and NESTOS RIVERS. The range is steep and rugged but lacks high continuous cliffs. Movement across the mountains is difficult although somewhat easier from north to south than from east to west. The southern edge of these mountains drops sharply to the THRACIAN PLAINS bordering the AEGEAN SEA to form one of the most extensive lowland areas of GREECE. To the east of these plains is the MARITSA RIVER which forms the GREEK-TURKISH border. Maximum elevation in the THRACIAN PLAIN is less than 3 500 feet with most of the section below 1 000 feet. The SOUTHERN HIGHLANDS in EASTERN GREECE reach heights of approximately 6 000 feet, however, the eastern portion is less rugged and has broader valleys.

TURKEY in EUROPE is small, less than one-thirtieth the size of ASIATIC TURKEY. It consists primarily of two minor mountain ranges (continuation of those in GREECE and BULGARIA), bordering a low undulating plain in the center. Along the northern and northeastern borders of TURKEY-in-EUROPE a series of folds occur forming the low lying ISTRANCA HILLS. The average elevation of these hills is 400 feet, most of the area being well dissected by streams flowing in a northeasterly direction and emptying in the BLACK SEA. The valleys are comparatively steep, and the mouths of the streams descend rapidly to the BLACK SEA.

Another mountain range of this area, TEKIR DAGH, smaller in size than the one just described, lies along the northwestern shore of the SEA of MARMARA and extends into the GALLIPOLI PENINSULA. Average elevation is 500 feet, and maximum height is 700 feet. Its slope is steep facing the SEA of MARMARA, but tapers off gently to the west. Streams of this area flow eastward, emptying into the SEA of MARMARA. Their courses are short but make up for their lack of length in the rapidity of their descent.

In between the small mountain ranges mentioned above is the central plain of TURKEY. This low plain is drained by the ERGENE RIVER which is a tributary of the MARITSA RIVER. The ERGENE RIVER is the only river of importance in THRACE. In general the average elevation of this plain is 100 to 200 feet above sea level.

RUMANIA, south of the DANUBE RIVER, is an extension of the DANUBIAN TABLELANDS.

Soil trafficability. (Map, Figure 6) Movement of mechanized vehicles over a large portion of GREECE and BULGARIA is largely restricted to roads because of rugged topography. The condition of highways consequently becomes a major factor in determining the trafficability of the area.. Due to extensive highway and road damage in the early phases of World War II and a lack of road maintenance and construction since the war, the roads and highways are reported to be in poor condition.

In general the area across the THRACIAN PLAIN is trafficable for wheeled vehicles and tracked vehicles. Most of the area consists of medium textured soils thus causing difficulty in movement during or immediately after heavy precipitation. During dry seasons the area is very dusty.

In the SOUTHERN HIGHLANDS the stream beds and valley floors are generally gravel and in places are covered with sand and silt. In the east the only natural corridor for movement through the SOUTHERN HIGHLANDS is the MARITSA RIVER VALLEY. Movement is relatively easy in parts of the uplands area especially in the headwater area of the ARDA RIVER, however areas of free movement are limited. In the MARITSA RIVER VALLEY the soils are predominantly loam. The northern portion of the SOUTHERN HIGHLANDS is characterized by sandy soil which is replaced by clay in the rolling plains. In the south there is bedrock beneath the hills and rolling plains; steep slopes often composed of sandy or gravel ground, overlain by clay soil. Most of the area is suitable for free movement

of mechanized units. Low plains to the north have few obstacles except occasional field walls, settlements, and groves of trees; here the ground is probably stable even when wet. Flood plains of the MARITSA and TUNDZHA RIVERS are swampy in places, and movement of vehicles is restricted to roads.

In the BALKAN MOUNTAINS the soils are principally sandy clay loam; stony and thin on the slopes, a few feet thick on the rolling uplands. Sand and gravel soils are found in the basins and broader valleys. The soil is generally well drained and stable, drying rapidly, although clay on the roads forms deep mud when wet. In the eastern section of the BALKAN MOUNTAINS the soil is generally the same as above except some of the valley floors are poorly drained and marshy. In both the central and eastern section of the BALKAN MOUNTAINS movement of mechanizedd units will be confined largely to existing roads.

The DANUBIAN TABLELAND is covered by loess; fine, silty, windblown dust, underlain chiefly by thick, nearly horizontal limestone and sandstone alternating with some marl and shale. The valley walls are generally rocky cliffs. In general the soil is well drained and dries quickly. The flood plains contain some silt, some clay, and in places sand. These areas are generally poorly drained and marshy. Mechanized units will generally have free movement in this area.

In TURKEY the soils of the low plain area are clays and marls. The areas near large rivers are composed of sand and gravel.

During the rainy season or after any thunderstorm in the plains area, the roads are softened and mechanical vehicles will have the greatest of difficulty.

Vegetation. (Map, Figure 7) Approximately one-third of BULGARIA is deforested. The eastern portion of GREECE is about eighty-five per cent deforested. The remainder is equally divided between cultivated fields and pastures. The forests are largely on the highlands and along the streams and rivers, with pastures on the lower slopes. The cultivated lands are near the villages, in the valleys, or on the rolling steppes of the DANUBIAN PLATEAU.

The forests of the THRACIAN PLAINS are divided into three types, Mediterranean, Modified Mediterranean, and the Central European. In most forested areas the trees are widely spaced and do not, in themselves, present a serious obstacle to movement. Due to the rough terrain in the forested areas, however, movement is very difficult. Even sparse growth is a handicap; moreover, the timber provides little concealment from aerial observation. From 600 to 3000 feet elevation the forests bordering the AEGEAN SEA are comprised of oak and mixed deciduous and coniferous trees. At elevations of 3000 feet to 5000 feet fir and pine forests predominate. Above 5000 feet, mountain brush wood, and alpine vegetation are characteristic. Cultivated lands represent approximately one-fifth of the total land area especially in the southern and southeastern sections of GREECE. Most of the arable land is subdivided into small holdings. Over half of the cereal acreage is devoted

to wheat. The remainder of the arable land is divided among vineyards, tobacco, cotton, sesame, and vegetables. The cultivated lands offer few obstacles to military movement. Large sections of GREECE have vegetation cover of grass or low brush. Some areas are entirely clear of trees. So far as vegetation is concerned, these areas neither hinder movement nor provide protective cover.

In the SOUTHERN HIGHLANDS are forested mountains, with alpine pastures mixed with rocky wastes on the higher summits, and pastures or grazing lands in the clearings on the lower slopes. The forests are arranged in altitude layers. At 4000 to 4500 feet elevation pine and fir trees predominate. Between 300 to 4000 feet elevation beech,is mixed with pine and fir trees. Below 3000 feet, a hardwood forest of beech, elm, oak, and poplar predominate with oak and poplar becoming more common as the lower levels are reached. The forests are generally open. Near the villages, the grazing of animals has destroyed most of the undergrowth. Concealment is generally good throughout this area. The valleys and basins are planted in grains, hay, and garden crops. Vineyards, orchards, and tobacco fields are common in the valleys at lower altitudes.

In the CENTRAL DEPRESSION, in contrast to the SOUTHERN HIGHLANDS, fields and pastures rather than forests predominate. The hills and mountains within this region have vegetation characteristic of the SOUTHERN HIGHLANDS. Even within the cultivated areas, stretches of woodland, especially on hillocks or near swamps, break the monotony of the fields. The eastern portion of the CENTRAL

DEPRESSION is a patchwork quilt of pastures, fields, orchards, and woodlands with forests predominating in the southeast. Some cover and concealment are locally available in every area. Except in the marshy regions mechanized units will have free movement.

The northern slopes of the BALKAN MOUNTAINS are covered with a dense forest of oak and beech trees which are commonly accompanied by a thick undergrowth of shrubs and brambles. The southern slopes and the eastern extremity of the mountains are covered with scrub and thickets. The vegetation is scanty near principal routes and towns where the forests have been cut to provide fuel and furnish pastures. The dense brambles and undergrowth in some areas would obstruct the movement of vehicles.

In general the DANUBIAN TABLELAND is grassland. The area to the south and the east are botanically transition zones between the grassland and the forests of the BALKANS. The original vegetation of the whole area has been considerably altered by man. The foothills consist of thickly wooded uplands and valleys cultivated in wheat, corn, apples, vineyards, and garden crops. The northern plateau is largely pasture with extensive areas in corn and wheat. Vineyards and gardens are also common near villages. Trees are rare except in the stream troughs. In general the region provides little cover or concealment except for hills and small clumps of trees. The DELI ORMAN area of the DANUBIAN TABLELANDS (along the northeast border of BULGARIA) is covered with low scrub forests interspersed wuth pasture and some grain fields. The VARNA KAMCHIYA

AREA in the eastern section of the DANUBIAN TABLELANDS resembles the BALKAN foothills in vegetation cover. In the south, this region is largely covered with second growth hardwood forest which will retard movement. Marsh, swamp vegetation, and intensively cultivated fields share the valley bottoms.

Most of TURKEY is covered with a low scrubby brush. There are relatively few large trees in the area.

Weather. (Map, Figure 8) The climate in the SOUTHERN HIGHLANDS is cold, alpine-like in the high mountains. In low valleys, mean monthly temperature ranges from 28 degrees F. in January to 61 degrees F. in July. Temperatures as low as -20 degrees F. and as high as 95 degrees F. have been recorded. The average annual precipitation is about 30 inches and probably more in the higher altitudes. Precipitation is evenly distributed throughout the year. Snow falls from October to April and remains on the highest peaks until June or July.

Climate in the CENTRAL DEPRESSION is somewhat warmer throughout the year than it is in the areas to the west and north. The climate is dry with hot summers and moderately cold winters. Mean January temperature is 33 degrees F., and mean July temperature is 74 degrees F. The annual precipitation is 20 to 40 inches.

The CENTRAL BALKAN MOUNTAIN area has a continental climate which is modified by altitude. The winters are severe with cold, bitter winds. Above the 4000 foot altitudes, freezing weather occurs 90 to 100 days a year. Snow remains on the higher peaks

during the winter and early spring, completely disappearing in the summer. The summers are generally mild, with hot days and cool nights. Numerous thunderstorms are frequently followed by flash floods in the valleys.

The climate in the EASTERN BALKANS near the coast is mild. Summers are fairly warm with maximum temperatures of 86 degrees F. Winters are cold but not as bitter as in the CENTRAL BALKANS. The mean temperature is about 35 degrees F., with a maximum of about 10 degrees F. There are approximately 25 days of snowfall during the year. In the western part of the area the seasonal changes are somewhat greater. There is an average precipitation of about 22 inches with the heaviest rainfall in the summer. The prevailing winds are easterly in the spring and early summer; north and northwesterly in late summer and winter.

The CENTRAL DANUBIAN TABLELAND has a continental climate with cold, severe winters from October to March. During this period roads and villages may be snowbound up to 55 days a year. Spring is a very short season; and the summers are hot and burning, lasting from May to September. Bitter cold winds sweep the plateau in the winter, hot drying winds in the summer. Valleys have somewhat milder climate due to the protection from the winds. The average annual precipitation is 20 to 25 inches mostly during the summer months.

The climate in the EASTERN DANUBIAN TABLELAND is generally the same as the CENTRAL DANUBIAN TABLELAND except it is somewhat milder due to the proximity of the BLACK SEA.

In EUROPEAN TURKEY the summers are hot and dry, though thunderstorms are frequent. Snow is always present in December, January, and February. In the SEA of MARMARA a northwest wind will usually bring fog between October and the end of March. The fogs usually lift at sunrise. The coastal temperatures of this area average 44 degrees F. for January and 74 degrees F. for July. On the plateaus where the elevations reach over 2000 feet, high pressure belts in the winter bring low temperatures and clear skies for many days. The summers are usually very hot with precipitation about the same as in the SOUTHERN HIGHLANDS area.

1The material in this appendix was derived primarily from JANIS, Bulgaria, Volumes I, II and III, (Washington, D.C.: Joint Intelligence Publishing Board, 1943). and Strategic Intelligence Study no. 83, (Washington, D.C.: Intelligence Branch, Office, Chief of Engineers, 1943). Other sources containing information of value are: Theater Study--Balkan Area, (Fort Knox, Kentucky, G2 Section, Armored School, date unknown). Introductory Economic Geography 2nd Edition, (New York, N.Y. By Lester Klimm, Otis P. Starkey and Norman F. Hall, published by Harcourt, Brace and Company, 1940). Weekly Intelligence Report No. 95, (Washington, D.C.: Office, Assistant Chief of Staff G-2, 1950).

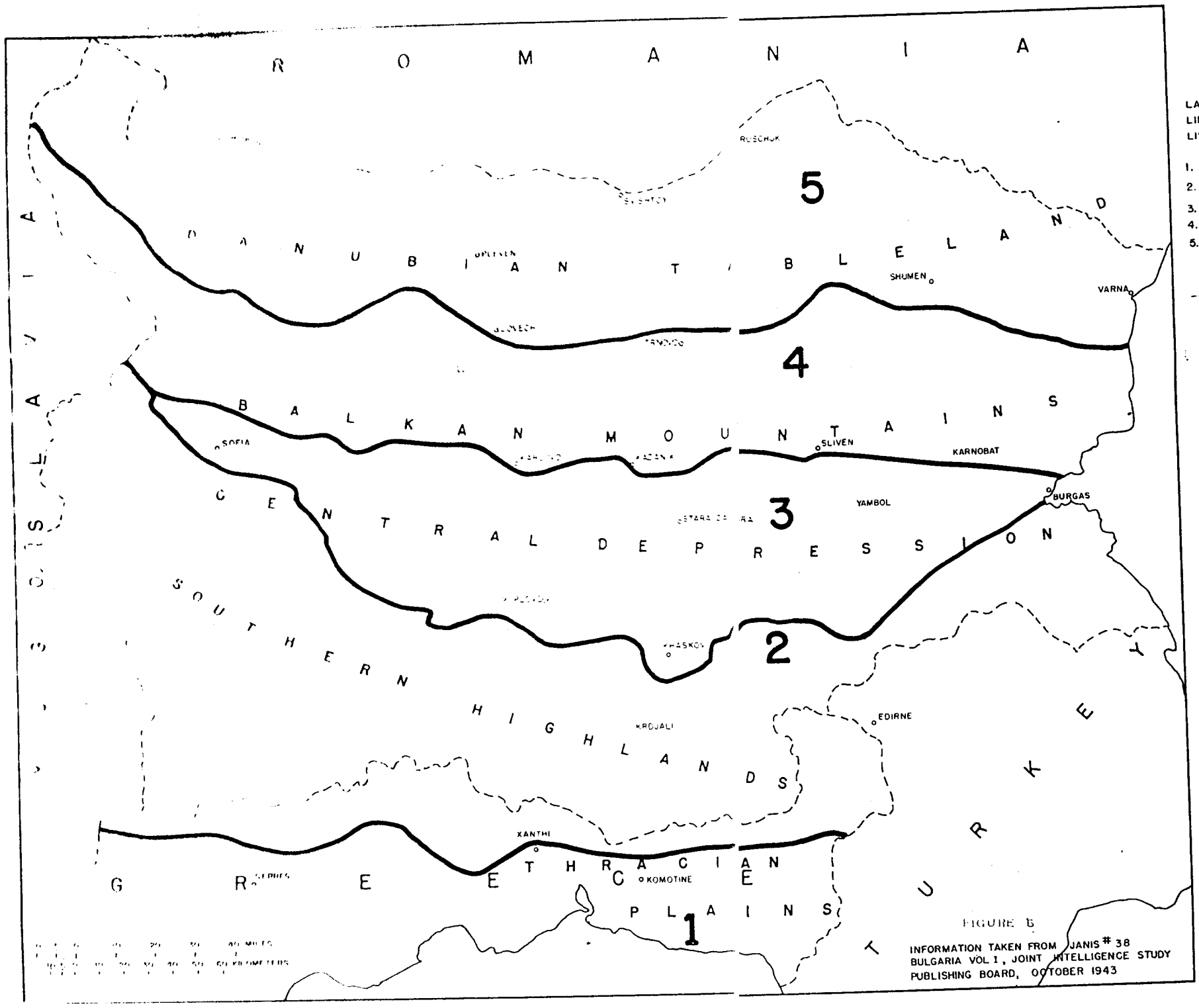


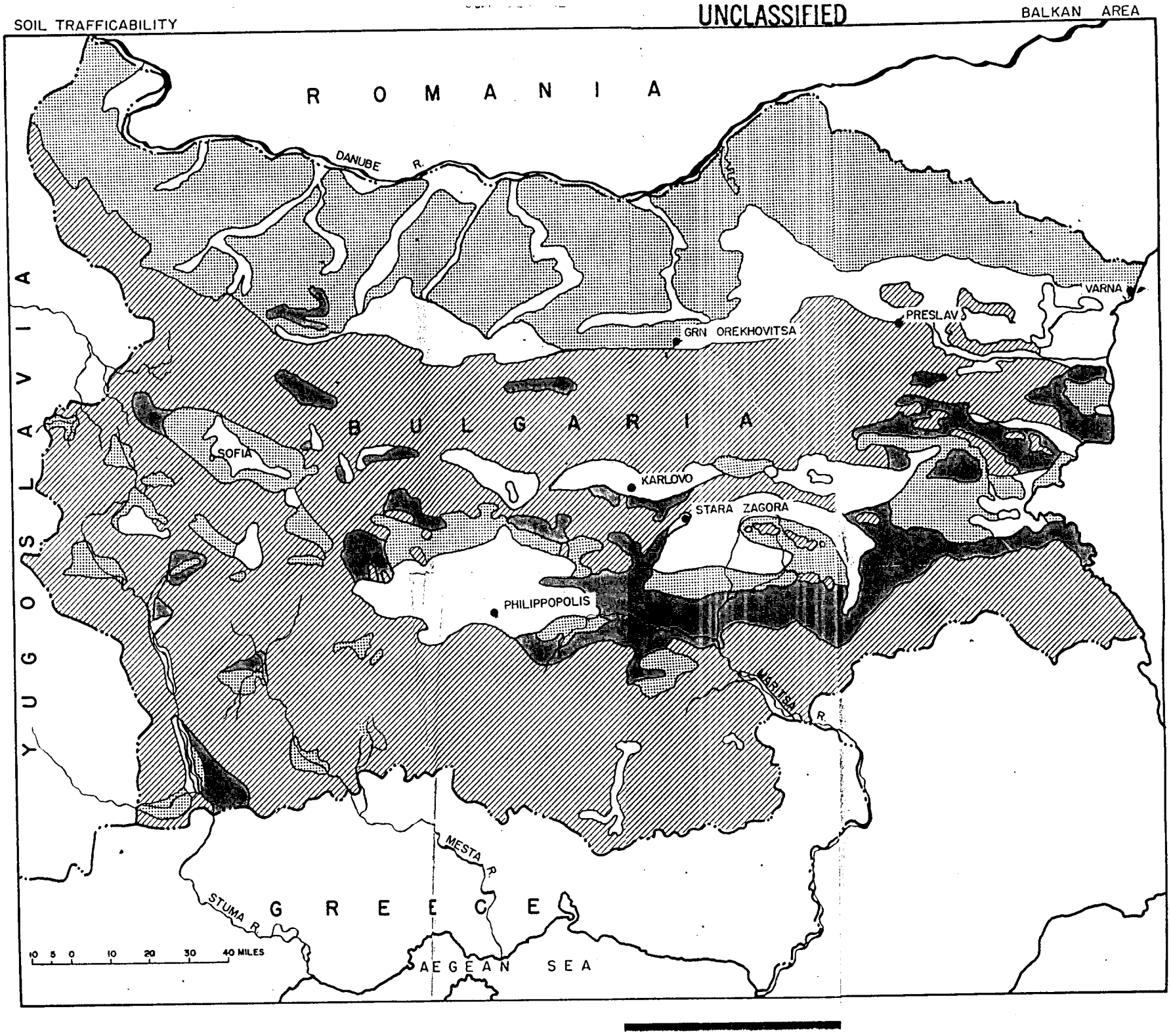
FIGURE 6

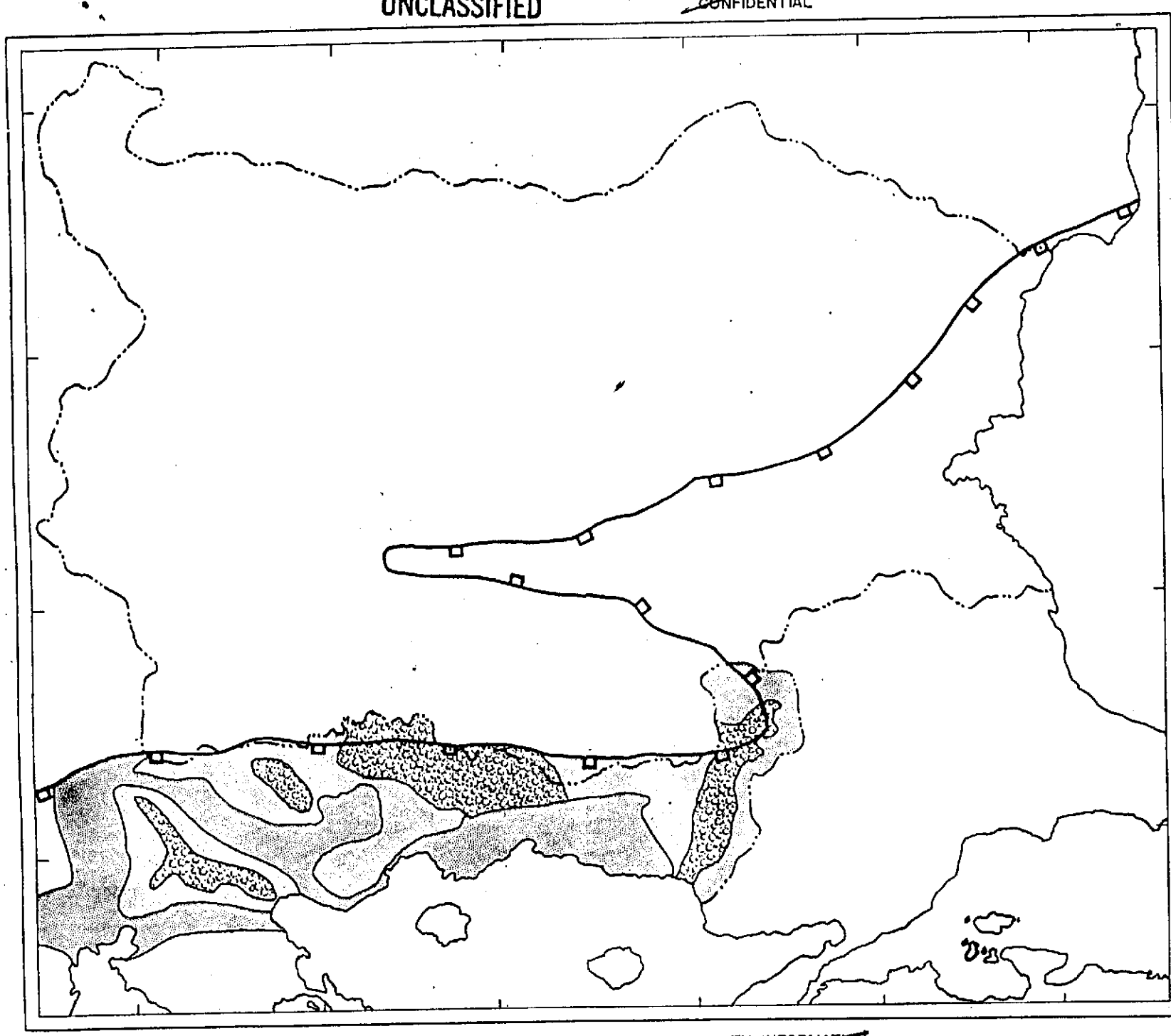
INFORMATION TAKEN FROM JANIS # 38
BULGARIA VOL I, JOINT INTELLIGENCE STUDY
PUBLISHING BOARD, OCTOBER 1943

SOIL TRAFFICABILITY

UNCLASSIFIED

BALKAN AREA





BALKAN AREA

VEGETATION REGIONS

PREDOMINANTLY FOREST (some pasture and fields)

PREDOMINANTLY FIELDS AND PASTURE (isolated trees and forest)

PREDOMINANTLY OPEN FIELDS AND PASTURE (some trees near villages)

PREDOMINANTLY SWAMPS AND MARSHES (some rice fields in Maritsa Valley)

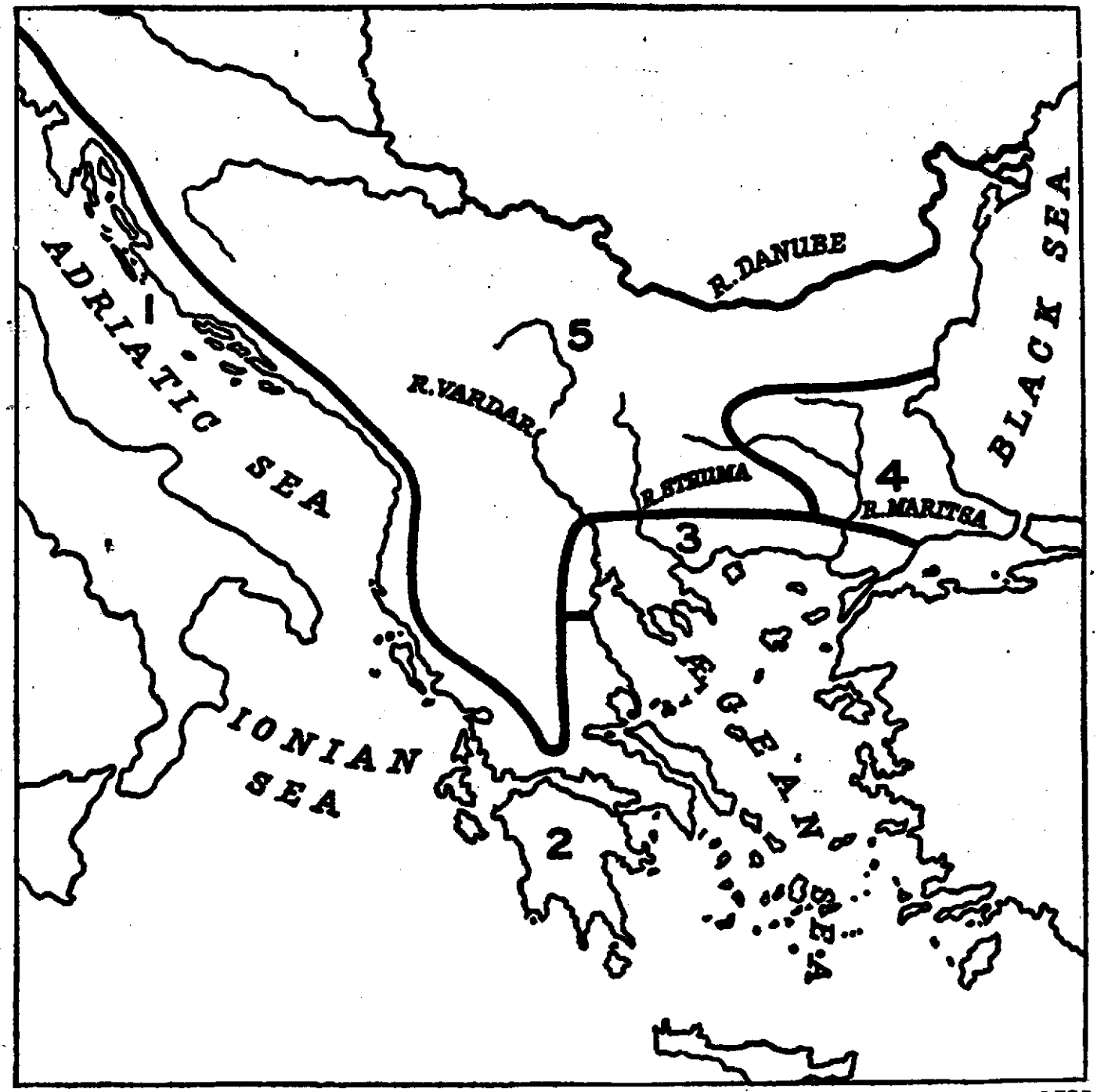
MEDITERRANEAN AREAS (area of mild winters; broadleaf vegetation remains green more than half of the year)

INTERNATIONAL BOUNDRIES

INFORMATION IN THIS SKETCH IS FROM CHAP I, STATEGIC INTELL DIGEST, INTELL DIV, D/A, MARCH 1948 AND, VOL I, JANIS OF BULGARIA, JOINT INTELL STUDY PUBL BOARD, OCT 1943

0 10 20 30 40 50 60 70

FIG.7



FROM KENDREW, "CLIMATES OF THE CONTINENTS." BY PERMISSION OF THE CLARENDON PRESS

THE FIVE MAJOR CLIMATIC REGIONS OF THE BALKAN PENINSULA

1. Dalmatian Region has very mild winters with copious rain
2. Greek Region has hot, arid summers and relatively cool, moist winters
3. North Aegean Transition Region has cold winters, hot summers, and rainfall fairly evenly distributed throughout the year
4. Eastern Transition Region has cold winters, moderately hot summers and most rain in winter half-year
5. Balkan Region has most rain during warmer half of the year, cold winters, and moderately hot summers

FIGURE 8

ANNUAL PRECIPITATION — BALKAN AREA

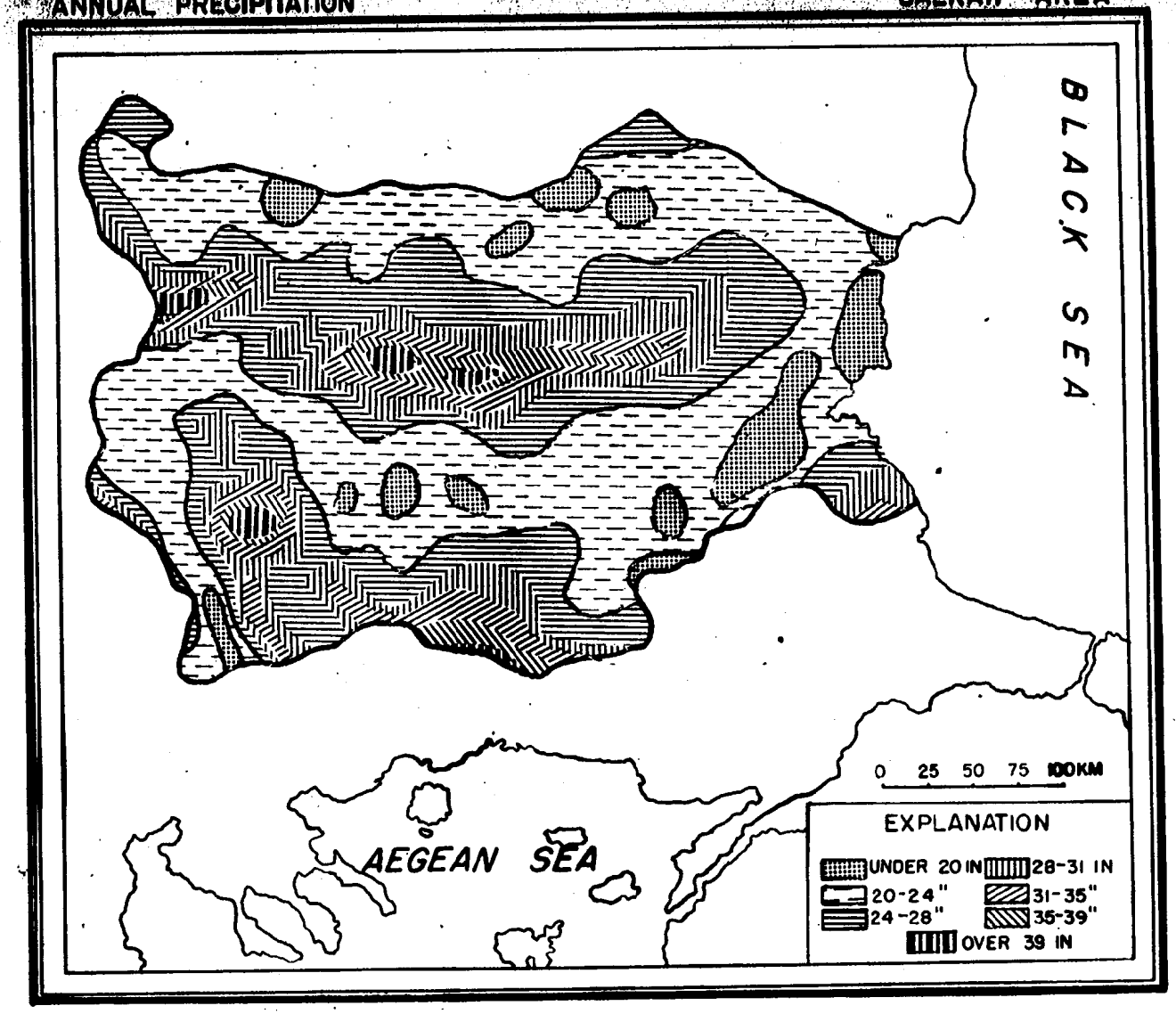


FIGURE 8A

APPENDIX III

ROAD AND RAIL COMMUNICATIONS[1]

This annex presents information of roads and railroads in the zone of advance of I Armored Corps. Terms denoting comparative excellence of roads and railroads of this area must be interpreted with caution. Rail and highway communications in the area are relatively undeveloped when compared with Western Europe or the United States.

Roads. (Map, Figure 9) In order that a clear concept of the roads described can be gained it might be well to define the classes of roads found in the area. There are four classes: main, first class, second class, and third class. These roads are all surfaced with concrete, waterbound macadam, granite block, or brick. The main roads are those with a paved surface width of 19.7 feet, and a total roadway width of 29.5 feet. First class roads have a paved surface width of 16.4 feet and roadway width of 26.2 feet. Second class and third class roads are generally surfaced to a width of 13.1 feet with the total roadway being 23 feet. In the mountains the shoulders are often narrowed thus reducing the total roadway width leaving the surfaced portion the same.

The majority of the roads are waterbound macadam which is essentially the same type of surface that is found on gravelled rural roads in the United States.

Road maintenance in the area has been variable in effectiveness. During World War II many of these roads were improved and brought to acceptable military standards under the supervision of the German Army and the Organization Todt, with the exception of those in EUROPEAN TURKEY. No recent information on road maintenance in this area is available to the writers. It seems reasonable to expect, however, that the roads of GREECE and TURKEY have been improved with American technical assistance and ECA funds. The Soviets likewise might be presumed to have seen to the improvement of Rumanian and Bulgarian roads as these two countries have been the recipients of considerable Soviet assistance.

Throughout the area there is adequate material for tmeporary road construction. Gravel, sand, and soil suitable for aggregate and binder are present throughout. Limestone and granite suitable for masonry can be obtained for construction in the area. Cement and petroleum type binder materials for permanent road construction are not available. Generally the problem of maintaining roads during the dry season would not be unduly complicated due to available materials at hand. The importation of binder materials for semi-permanent or permanent construction would be necessary to maintain supply routes if operations continued into the winter and spring months.

The bridges appear to be a major problem. In the mountains there are many culverts and short bridges. The valleys are traversed

by numerous streams. However, most mountain bridges are short and can either be braced to carry military loads or replaced with field engineering bridge equipment. Many of the streams in the valleys are shallow with gravel beds and can be forded during the dry season.

The best roads in this area are generally oriented on an east-west axis connecting the BLACK SEA ports of RUMANIA and BULGARIA and the land bridge of EUROPEAN TURKEY with the major cities of CENTRAL and SOUTHEASTERN EUROPE. These routes will be discussed later as they provide an excellent network of lateral communications in the corps zone. There are two major north-south routes which would support armored operations. The first of these runs nearly straight northward through the left portion of the corps zone from KOMOTINI in GREECE to the Bulgarian DANUBE port RUSE. The second runs northward from the beachhead area in GREECE through EDIRNE, TURKEY, to SHUMEN! in BULGARIA. From SHUMEN there are diverse routes to corps objectives at the Rumanian DANUBE ports TURTUCAIA and SILISTRA and the BLACK SEA port CONSTANTA. A graphic presentation of the roads described may be found on Map, Figure 9.

Detailed description of routes in corps zone. (Map, Figure 9) The main routes and a detailed description of the road conditions of each are as follows:

KOMOTINI, KHASKHOVO, POPOVITSA (CHIRPAN), STARA-ZAGORA, KAZANLIK-TERNOVO-BELA-RUSE (238 miles):

KOMOTINI-KHASKHOVO (72 miles; Ref Route 1A). Three or four miles north of KOMOTINI this route ascends into the SOUTHERN HIGHLANDS. As it crosses the mountains through MAKAZ PASS (2,320 feet), the road is winding and steep encountering grades of 10 to 20 per cent. In the area surrounding KRDZHALI the road crosses a basin which is traversed by many small streams. North of MOMCHILGRAD a critical iron bridge nearly 400 feet long is crossed. Just south of KRDZHALI a stone bridge 394 feet long presents a vulnerable, critical point. Two alternate routes run from KRDZHALI to KHASKOVO. North of KRDZHALI the SOUTHERN HIGHLANDS are again crossed for a distance of some 20 miles. From the SOUTHERN HIGHLANDS to KHASKHOVO the road winds across the level CENTRAL DEPRESSION. This main road is two-way and metalled throughout. It was improved for military traffic, under German supervision, in 1943. This route is subject to snow blocking in the winter.

Alternate routes are (Ref. Route 1B) KHASKHOVO-STARA ZAGORA (37 miles) or KHASKHOVO-POPOVITSA (CHIRPAN)-STARA ZAGORA (72 miles). These routes lie across the flat MARITSA VALLEY in the CENTRAL DEPRESSION. They are two-way and metalled throughout. Critical points are bridges crossing the MARITSA RIVER. Sections of the road are subject to temporary flooding in the spring.

STARA-ZAGORA-KAZANLIK(19 miles;Ref Route 1c). This main road passes through the SREDNA GORA mountains in a gorge which permits limited maneuver only for approximately six miles. After

leaving this defile the route continues down the TUNDZHA VALLEY to KAZANLIK. The TUNDZHA RIVER in this area presents no serious obstacle. It is approximately 150 feet wide and three to seven feet deep. The banks are generally low with frequent fords.

KAZANLIK-TERNOVO (47 miles;Ref Route 1d). Initially this main road crosses the TUNDZHA VALLEY. It then ascends the BALKAN MOUNTAINS over hairpin curves with 10 to 20 per cent grades, crossing through the SHIPKA PASS (4 364 feet) and descending again on a winding steep roadway. Upon leaving the mountains this route is fairly level as it runs through the YANTRA VALLEY. There are many bridges in this area, and due to the nature of the terrain they may prove critical. Spans are generally short allowing repairs to be made rapidly with military engineering equipment. Alternate routes to the east are available. Little detailed information is available on these routes, but maps show them to be first or second class.

TERNOVO-RUSE (63 miles; Ref Route 1E). This route leaves TERNOVO on a high single span bridge which is a critical point. It passes along the YANTRA VALLEY through a narrow defile. This defile may be avoided by using an alternate route throuth GORNA-OREKHOVITSA. After crossing the ROSITA RIVER the road continues along the YANTRA VALLEY to BELA. The valley at this point will permit some maneuver. From BELA to a point three miles south of RUSE the route travels along a plateau. Descending from the plateau it crosses the LOM RIVER and continues across a flat plain to RUSE. This road averages 20 feet in width, passes through

fairly easy terrain, has very few steep grades, and is classified as a main road.

DHIDHIMOTIKHON-EDIRNE-ELKHOVO-YAMBOL-OMORTAG-SHUMEN (164 miles) then north to TURTACAIA (130 miles), SILISTRA (228 miles), VARNA (221 miles) and CONSTANTA (323 miles):

DHIDHIMOTIKHON-EDIRNE (25 miles; Ref Route 2A). This route leaves the beachhead area seven miles south of DHIDHIMOTIKHON. It parallels the MARITSA RIVER the entire distance travelling along the valley floor. The most critical point on this first class road is the bridge across the MARITSA just south of EDIRNE.

EDIRNE-ELKHOVO (39 miles; Ref. Route 2B). This main road goes up the TUNDZHA VALLEY for about ten miles, crossing it twice. It then bears northwestward skirting the lower slopes of the SOUTHERN HIGHLANDS until it again follows the TUNDZHA to ELKHOVO. Following a natural corridor this passage avoids crossing the RHODOPE in their higher and more rugged parts. Primary critical points are the rather frequent crossings of the TUNDZHA RIVER which limit maneuver as do the thick patches of woods along the way. Waht little information is available on alternate routes suggest they should be carefully reconnoitered before being used.

ELKHOVO-YAMBOL (24 miles; Ref. Route 2C). Two roads, one main and one first class, parallel the TUNDZHA RIVER from ELKHOVO to YAMBOL. These roads are far enough from the river to avoid its floods. The countryside is flat, lying in the CENTRAL DEPRESSION.

The tributary streams in the area should not impede movement as they appear to be capable of being forded or bridged by short spans.

YAMBOL-SLIVEN (14 miles; Ref. Route 2D). A first class road runs across the level CENTRAL DEPRESSION from YAMBOL to SLIVEN. The only critical point on this route is located midway between the two cities where the road crosses a swampy area in the TUNDZHA VALLEY.

SLIVEN-OMORTAG (38 miles; Ref. Route 2E). Leaving SLIVEN the road immediately ascends into the BALKAN MOUNTAINS where it is winding and often steep. About halfway between SLIVEN and OMORTAG it crosses the KOTEL PASS (2,838 feet) and then descends to OMORTAG. This route crosses several rivers and streams which could be obstacles. It is classified as a main road. Deployment over the entire route might be limited.

OMORTAG-SHUMEN (38 miles; Ref Route 2F). From OMORTAG, located in hilly country, the road ascends the PROLAZ PASS (1548 feet) then descends through a narrow gorge which would seriously hinder deployment. The road then winds through hills to TRGOVISHTE. From here to SHUMEN it crosses a number of streams and rivers flowing through rolling, not too difficult, terrain. This road is classed as main.

SHUMEN-VARNA (57 miles; Ref. Route 2 G). This main road passes over low hills through the VARNA BASIN. There is one steep hill with 10 to 20 per cent grades between SHUMEN and VETRENO. Along this portion of the road several rivers are crossed which

are probably fordable in many places.

SHUMEN-TURTUCAIA (66 miles; Ref. Route 2H). Leaving SHUMEN this first class road climbs into the DELI ORMAN, which are rolling and partly forested. There are few actual defiles here, but deployment might be restricted for short distances. At RAZGRAD the road descends into a valley. North of this city the route again traverses the DELI ORMAN which being rolling and streamless afford few obstacles to military movement. Near TURTUCAIA movement from the few existing roads and trails will probably be limited by marshes or soft ground adjoining the DANUBE.

SHUMEN-SILISTRA (64 miles; Ref. Route 2I). This road is classed as a main road to the border of RUMANIA. Several maps show it as a first class road from the border to TURTUCAIA. Like the route described above it travels through the DELI ORMAN region. The country near SILISTRA appears marshy and might prove difficult for off-road maneuver.

VARNA-CONSTANTA (102 miles; Ref. Route 2J). Leaving VARNA this main road travels along the VARNA BASIN for about ten miles. It then goes up and down hill for some 22 miles descending onto the flat plains of RUMANIA near BAZARGIC. From BAZARGIC to CONSTANTA the route lies across flat, dry terrain.

KHASKHOVO-EDIRNE (62 miles; Ref. Route 3A). Par of the international highway from WESTERN EUROPE to ISTANBUL and the NEAR EAST, this main road runs through the valley of the OLU DERE. It then crosses the MARITSA on a critical bridge and proceeds down the valley

to SVILENGRAD where another critical bridge is crossed. It continues down the MARITSA VALLEY to EDIRNE.

KARLOVO-KARNOBAT (135 miles; Ref. Route 3B). This main road is as a whole not difficult. It provides an excellent lateral route across the entire corps zone. Bridges at SLIVEN and KARNOBAT are critical. This road would facilitate resupply from the port of BURGAS when that port is taken by the corps on the right flank.

KAZANLIK-SLIVEN (52 miles; Ref Route 3C). This road is classified on various maps as a first and a second class road. It closely parallels a railroad and the TUNDZHA VALLEY RIVER so should be fairly level. The TUNDZHA VALLEY is wide and level for most of its length.

LOVECH-ORMORTAG (98 miles; Ref. Route 3D). This route runs from the corps right boundary to ORMORTAG and continues to the seaport VARNA. It is one of the two principal main highways across the corps zone. It crosses moderately hilly country most of its length, with very few steep grades or sharp curves. From LOVECH to TERNOVO it is difficult during wet weather.

RUSE-RAZGRAD (39 miles; Ref. Route 3E). This main road crosses the DELI ORMAN PLATEAU. It is comparatively straight, level route and is classified by several sources as one of the best roads in the zone.

DANUBE HIGHWAY: RUSE-TURTUCAIA-SILISTRA-CONSTANTA (143 miles; Ref. Route 3F). This first class highway connects four of the five corps objectives. It generally parallels the DANUBE RIVER remaining far enough inland to avoid the flood plain and marshes. At some places movement may be restricted to the road due to boggy ground.

Railroads. (Map,Figure 9) The railroads located in the corps zone would probably have little tactical significance. They are for the most part poorly engineered and constructed. Maintenance standards are extremely low. The best information available indicates the international connections are poor. Due to the nature of the terrain, cut up by mountains, rivers, marshes, and streams, they could be easily damaged or destroyed by air or ground action and sabotage. This is a particularly significant factor when it is realized that all of the lines are single tracked. The capacities discussed below are to be accepted with caution. They are computed assuming maximum favorable operating conditions. Soviet standards of railroad operation being extremely low, it is doubted these railroads have improved since World War II.

The following are principal railroads in the corps zone:

DHIDHIMOTIKHON-EDIRNE. This railroad follows the MARITSA VALLEY and closely parallels the right route of advance in the corps zone. Under optimum conditions it is capable of supporting 10 trains a day each carrying an average of 303 tons. Its total capacity is 3030 short tons daily.

EDIRNE-PLOVDIV. This is a section of the Orient Express Route (BERLIN-BAGDAD). It is one of the best railroads in the zone. It also runs through the MARITSA VALLEY. Six vulnerable bridges are crossed. The capacity of this line is 4456 short tons based on 12 trains per day carrying 363 tons.

MOMCHILGRAD-STARA ZAGORA-GORNA OREKHOVITSA-RUSE. This railroad closely parallels the left route of advance for the corps. It does not, however, extend southward through the SOUTHERN HIGHLANDS to the beachhead. It connects with all the lateral routes described. It passes through eight tunnels and over seven bridges, all of which are extremely vulnerable. This road will support 12 trains, each carrying 337 short tons daily. The total capacity per day is 4044 tons between any two given loading points. Conditions beibg equal along the route it is to be noted that line capacities increase from south to north. This would favor a smooth flow of supply northward. At RUSE there is a train ferry connecting the Bulgarian and Rumanian railways. This ferry is capable of transferring 10 trains daily, each carrying 242 short tons. The total capacity is 2420 tons in 24 hours. This ferry is extremely critical as there is neither a highway or railway bridge at RUSE.

ZLATI DOL-NOVA ZAGORA-KARNOBAT-SHUMEN. Branching north from the Orient Express route this road runs northward through the right portion of the corps zone. From SHUMEN connecting routes run to RUSE, VARNA, GORNA OREKHOVITSA, and CONSTANTA. This road crosses three vulnerable bridges and many tortuous curves to KARNOBAT. This section will support an average of 11 trains carrying 302 tons daily or a total of 3322 short tons. From KARNOBAT to SHUMEN the road crosses one critical bridge. It supports 14 trains carrying 363 tons. This gives a total daily capacity of 4082 tons for the division.

SHUMEN-RUSE. SHUMEN-VARNA. SHUMEN-BULGARIAN BORDER.

These three routes share a common roadbed to KASPICHAN. This creates a bottleneck and limits their total capacity of 2904 tons per day carried by 12 trains of 242 tons each. This capacity could be increased by double tracking the short line from SHUMEN to KASPICHAN. Twp bridges near VARNA are critical.

BULGARIAN BORDER-CONSTANTA. This section of the Rumanian railway system traverses easy terrain and is capable of transporting 5808 short tons a day on 16 trains.

PLOVDIV-KARNOBAT. KARLOVO-KARNOBAT. These lines traverse the corps zone. They cross several important bridges which could be serious obstacles. The total daily capacity of each of these roads is 3624 short tons carried by 12 trains each loaded with 302 tons.

LEVSKI-SHUMEN. This line crosses two critical bridges. From LEVSKI to GORNA ORekHOVITSA this is the most efficient railroad in the zone. Sixteen trains, each carrying 423 tons, move 6768 short tons daily.

1The material in this appendix was derived primarily from JANIS, Bulgaria, Volumes 1,2, and 3 (Washington, D.C.: Joint Intelligence Study Board, 1943). Other sources containing information of value are: Routes Into Europe, Parts I and V, The Field Artillery Journal (Washington, D.C.: U.S. Field Artillery Association, June and September 1943); Terrain Intelligence, Bulgaria, Volume 2 (Washington, D.C.: Chief of Engineers, 1943); Strategic Study of Greece, Part I and II (Washington, D.C.: Intelligence Division, Department of the Army, 1950).

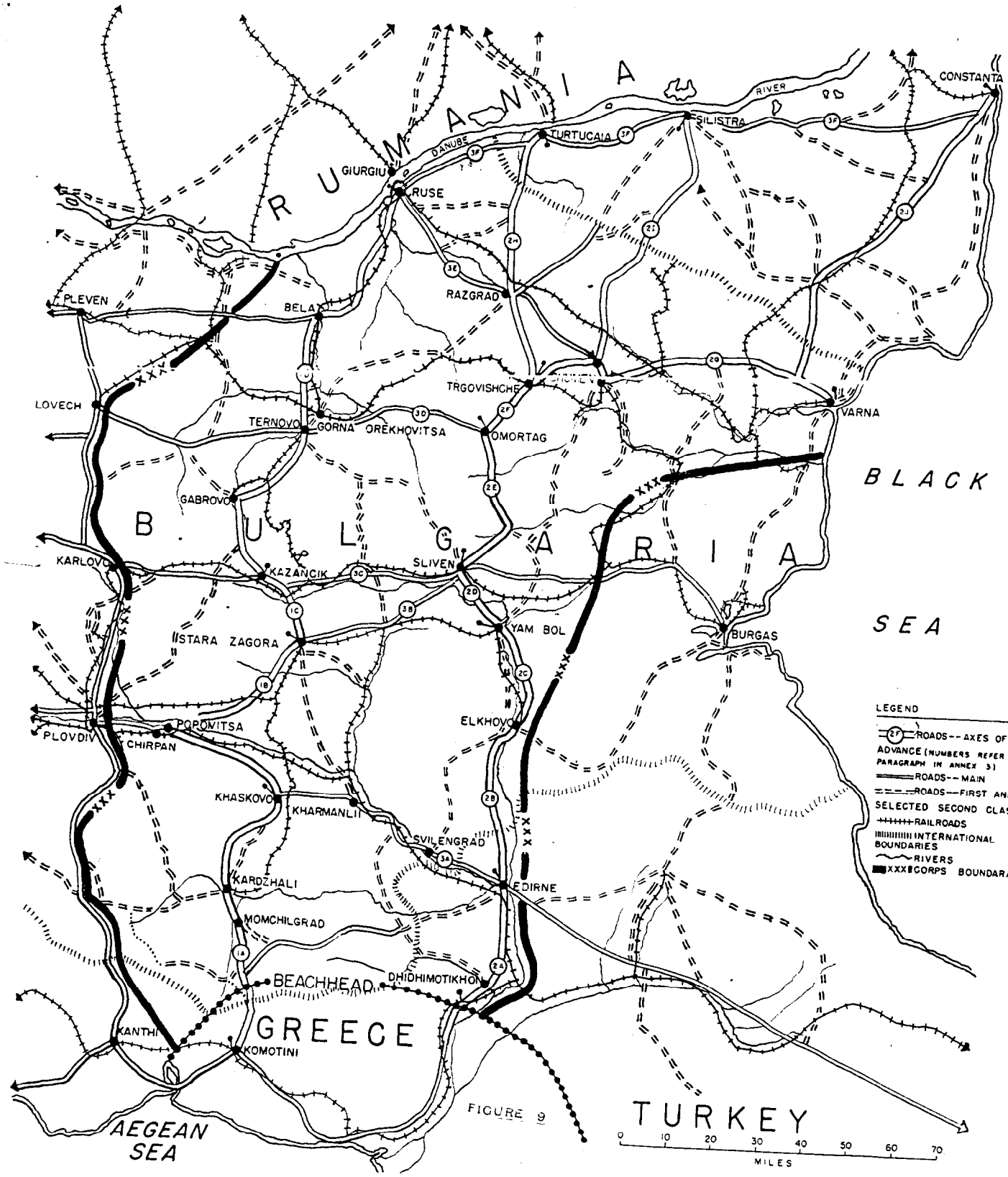

R U M A N I A
DANUBE
RIVER
CONSTANTA
SILISTRA
TURTUCAIA
GIURGIU
RUSE
RAZGRAD
PLEVEN
BELA
LOVECH
TRGOVISHCHE
VARNA
TERNOVO
GORNA OREKHOVITSA
OMORTAG
GABROVO
B U L G A R I A
BLACK SEA
KARLOVO
KAZANCIK
SLIVEN
YAM BOL
BURGAS
STARA ZAGORA
ELKHOVO
PLOVDIV
CHIRPAN
POPOVITSA
KHASKOVO
KHARMANLI
SVILENGRAD
EDIRNE
KARDZHALI
MOMCHILGRAD
BEACHHEAD
DHIDHIMOTIKHON
KANTHI
KOMOTINI
GREECE
AEGEAN SEA
TURKEY
LEGEND
ROADS--AXES OF ADVANCE (NUMBERS REFER TO PARAGRAPH IN ANNEX 3)
ROADS--MAIN
ROADS--FIRST AND SELECTED SECOND CLASS
RAILROADS
INTERNATIONAL BOUNDARIES
RIVERS
XXX CORPS BOUNDARARY
0 10 20 30 40 50 60 70
MILES

FIGURE 9

APPENDIX IV

INDUSTRIAL AND POPULATION CENTERS

This annex presents information of the industrial and population centers in the zone of advance of I Armored Corps. These two subjects will be treated together as the centers of population and industry in this area are located together.

Only 20 per cent of the population of this area is located in cities or towns of 10,000 or larger. The urban areas are generally divided into four classes according to function--agricultural, transportation and industrial centers and ports. The former are not of primary military importance. The cities and towns are planned on ancient lines in architecture, streets, and utilities. They afford scarce billeting facilities due to a lack of modern public buildings. Some schools, barracks, and municipal buildings are present, but they are limited in regard both to quantity and quality. Some open storage areas can be found in parks, squares, dockside areas, and open fields near cities. Water systems are not up to required American military standards. Modern sewerage systems are practically unknown. These two facts coupled with the unsanitary tendencies of the native population and the endemic malaria, typhus, and dysentery constitute a poor public health situation.

This area is not important industrially when compared with the UNITED STATES, WESTERN EUROPE or the SOVIET UNION. In fact it

is extremely poor when compared with the remainder of CENTRAL EUROPE. The principal exports from the area are agricultural products. Grain, fruits, oilseeds, tobacco, attar of roses, wines, and produce comprise the bulk of exported goods. The area depends on imports for petroleum, metals, raw and processed textiles, hides, most finished goods, and all heavy machinery. What small factories produce end products do so for local markets. Their production is not sufficient to satisy the needs of the area. Lignite, coal, and lumber are produced in sufficient quantity to fulfill local needs.

Principal cities and towns:

EDIRNE (population, 1940: 45,680). This ancient Turkish city is chiefly important as a transportation center. It is the place of entry into TURKEY of the Orient Express rail route. It engages in an active general trade exporting fruits, agricultural products, silk, cotton, opium, attar of roses, wax, red dye, and wine. The water source of this city is from the mountains and is believed to be relatively pure.

KLASKHOVO (population, 1943: 26,622). The city is in the northeastern part of the SOUTHERN HIGHLANDS about 45 miles southeast of PLOVDIV. Its industries process tobacco, silk, cotton, and cereals. It is the commercial center for agricultural products of the region and the administrative center of the district. The main PLOVDIV-VRBITSA-KHARMANLI-EDIRNE road (alternative road to VRBITSA via TATAREVO), the road south to KRDZHALI and KOMOTINI, and

another north to RAKOVSKI and STARA-ZAGORA radiate from this point. The railroad line from RAKOVSKI (on PLOVDIV and EDIRNE route) to MOMCHILGRAD passes through KHASKOVO. Water is obtained from an underground river. A large state hospital with 300 beds exists in the area.

CHIRPAN (population, 1934: 11,308). CHIRPAN is in east-central BULGARIA, on the fertile THRACIAN PLAIN, 36 miles east of PLOVDIV. Wine, tobacco, and silk are produced here; but the city is no longer important commercially. It is the administrative center of the district. This town is the junction of the main PLOVDIV-STARA ZAGORA-BURGAS road, with secondary roads south to the PLOVDIV-EDIRNE road and north into the BALKAN MOUNTAINS. It is on the railroad line from PLOVDIV to BURGAS. The railrodd station is one mile northeast of the city. The town was largely destroyed by an earthquake in 1938. As a result most dwellings are of new construction. There are two hotels which might be suitable for troop housing.

KAZANLIK (population, 1934: 15,097). The city is in CENTRAL BULGARIA between KARLOVO and SLIVEN. It is in the center of the "Valley of Roses" and controls the southern approach to SHIPKA PASS. KAZANLIK is one of the most important aviation centers in BULGARIA. In the city is a small munitions plant which operates in conjunction with a government arsenal. The arsenal assembles artillery from imported parts, makes repairs on military equipment, and manufactures relatively non-technical military supplies. Three textile mills produce wool and cotton goods. Attar of roses is

refined here. Minor industries are milling, tobacco processing, marble quarrying, and coking. This city is a transportation center being on the through rail line and highway from SOFIA to BURGAS. It is located on the left route of advance for the corps (see Appendix III). There is an airfield 1-1/2 miles from KAZANLIK. Five hotels, three shcools, a theater, a museum, and military barracks provide possible billeting sites. There is one 80-bed hospital in the city.

STARA ZAGORA (population, 1947: est 37,057). This central BULGARIAN city is a focal point of highways and one of the most important railroad junctions in the zone. The city is the center of a rich agricultural district. The known industries are all small, mainly producing food stuffs. Located here are oil tanks of 160 metric ton capacity. The PLOVDIV-SLIVEN railroad passes through STARA ZAGORA as does the north-south MOMCHILGRAD-RUSE line. Shops, extensive sidings, and other railroad installations are important. This city is located on the left route of advance in the corps zone. About two miles south is a military airfield. Four hotels, two schools, a museum, a theater, and two military barracks afford billeting facilities. A 450-bed hospital is located on the western edge of the town.

YAMBOL (population, 1947: est 30,111). Located on the TUNDZHA RIVER in the center of the corps zone, this city is chiefly important as a rail and road way-station. It lies along the right

axis of advance. The industries are textiles, rice, milling, and a small iron mine. There is an airfield near the town. Possible billets are two hotels and two barracks. A 70-bed state hospital is located in the area. Malaria presents a very serious medical problem.

SLIVEN (population, 1947: est 35,553). This city is in the eastern part of the STARA PLANINA and is a focal point in the highway net of the zone. It is one of the principal commercial and industrial centers in BULGARIA. There are seven textile factories here, part of which produce army uniforms. Other industries include food processing, wine making, and the processing of construction materials. SLIVEN is on the trunk railroad from SOFIA to BURGAS. Six highways converge on the town from all directions except the north. Main or first class roads lead southeast to YAMBOL, ELKHOVO, and EDIRNE, southwest to STARA ZAGORA east to BURGAS, northwest to TERNOVO, and northeast to SHUMEN and VARNA. There is a good airfield one mile southeast of the town. Possible billeting facilities include three hotels at the SLIVEN MINERAL BATHS. There is a state hospital with 150 beds and a 20 to 40-bed army hospital.

GABROVO (population, 1934: 13,823). GABROVO has developed into one of BULGARIA'S leading centers of industry through the use of abundant water power. This city is a large producer of textiles, having 21 textile factories of which ten produce woolens. There

are two tanneries, several small metalworking shops, and a limestone quarry here. Of military importance is a plant making gunpowder and explosives. GABROVO is located on the KOMOTINI-RUSE HIGHWAY. Its location controls the northern approach to SHIPKA PASS. GABROVO is thus a critical point for south-north TRANS-BALKAN traffic. A spur line links the city with the STARA ZAGORA-GORNA OREKHOVITSA railroad. Available billeting facilities include three hotels, a school, and barracks. The state hospital has an 80-bed capacity.

TERNOVO (population, 1934: 14,100). The chief importance of this city is its location as a critical point in the rail and highway networks. TERNOVO is some 40 miles south of the DANUBE RIVER on the northern slope of the BALKAN MOUNTAINS. It is the junction of the highways from RUSE on the DANUBE and VARNA on the BLACK SEA with roads west, southwest, and southeast. The city is located in hilly terrain along a succession of bends in the YANTRA RIVER. Two railway bridges and two tunnels are critical for the railroad as it passes through this city. Similarly, several highway bridges are important. TERNOVO has some textile and leather industry, a brick factory, and a large brewery. Housing for troops or military installations could be provided by six hotels, a large school, barracks, and a combination theater-museum. There is a 240-bed state hospital in the town.

GORNA OREKHOVITSA (population, 1934: 8,793). The town is in north-central BULGARIA about five miles northeast of TERNOVO. It is a junction of rail lines from SOFIA to VARNA and from

STARA ZAGORA to RUSE. The town is about two miles southeast of the railway station from which it is separated by a hill. Southwest of the station there is one large plant producing sugar and alcohol. The town is also noted for the production of wine and raisins. Oil storage for 20 metric tons of oil is available. Billeting facilities include at least two hotels. This town is located on an alternate route from TERNOVO to RUSE. It is an important rail junction providing shops, roundhouse, and switching facilities for the MOMCHILGRAD-RUSE line and the SOFIA-VARNA line.

SHUMEN (population 1947: est 31,169). SHUMEN is about halfway between VARNA and RUSE. It is an important road and railroad junction. Roads from TERNOVO, RUSE, and SILISTRA join several miles outside the city and enter from the northwest. The highways from VARNA and TERNOVO join the city. SHUMEN has important leather and woolen manufactures, canning factories, flour mills, and trade in grain and wine. There is also some manufacture of silk, clothing, copper, and tinware. There is a small arsenal making small arms ammunition and rifles in the city. A metal manufacturer of unknown capacity is reported here. Three hotels, a school, a museum, and some barracks comprise the potential billeting facilities. The state hospital here has 200 beds. Typhus is endemic in the area.

VARNA (population, 1947: est 77,792). VARNA is in the northeast corner of BULGARIA on the BLACK SEA. It is the second largest BLACK SEA port in BULGARIA, being second only to BURGAS.

It is also the second most important BLACK SEA port in the zone, being exceeded in capacity only by CONSTANTA. During World War II it was used as a military port and submarine base by GERMAN forces. The important industries are fishing, textiles (three large factories,) food processing, wood products, soap, and leather. The largest tobacco factory in the area is located here. Of military importance are an explosives and small arms ammunition plant, shipyards (for small vessels), a locomotive shop, several garages, and some metalworking shops. Oil storage facilities total 32,170 metric tons. Port facilities are afforded by the artificial inner harbor and LAKE DEVNA, the two being connected by a canal. This city is the eastern terminus of the main SOFIA-VARNA railroad. Highways lead north to CONSTANTA, south to BURGAS, and west to SILISTRA, RUSE and TERNOVO. There are two airfields near the city and a seaplane dock in the harbor. The terrain nearby is suitable for further airfield construction. Due to its standing as a commercial, military, and resort center VARNA affords considerable billeting facilities. Those outstanding are 27 hotels, eight large schools, theaters, a castle, and the military and naval barracks. Sanitation in this city is good, and hospital facilities are plentiful. There is a large state hospital with 360 beds, another state hospital of 320 beds, and an army hospital. The Germans constructed a convalescent center here during World War II. This center had a capacity of 400 hospital beds and 3000 to 4000 spaces for convalescent cases.

RAZGRAD (population, 1934: 16,700). This town is on the BELI LOM RIVER in northeastern BULGARIA, midway between RUSE and SHUMEN on the main highway. A secondary road runs south to TRGOVISHTE on the TERNOVO-SHUMEN road. It is on the VARNA-TERNOVO railroad line. There are two hotels. The state hospital has 150 beds.

RUSE (population, 1947: est 53,420). RUSE is in northeastern BULGARIA on the south bank of the DANUBE. It is across from GIURGIV, RUMANIA, to which it is connected by the only BULGARIA-RUMANIA railroad ferry and by a German-built pontoon bridge. It is the most important DANUBE port in the zone. The city has many industries. Among the more important are five textile mills (producing cotton, silk, linen, and hemp goods), two tanneries, three small petroleum refineries, two rubber factories, and a smokeless powder and cordite plant. There are several metal manufacturers of unknown capability in the town. The port is well equipped to load and unload river barges. There are oil storage facilities for 35,480 metric tons at RUSE. The DANUBE at this point is 770 yards wide with a slow current. RUSE is the northern terminus of the rail lines from VARNA and MOMCHILGRAD. Here are freight yards and one of the principal railway workshops in the zone. Siding accommodations will hold approximately 400 cars. Highways enter the city from SILISTRA, VARNA, and TERNOVO. There is an airfield near the city. Troop housing is limited to three small hotels, five schools, two theaters, and three barracks areas. There is a

430-bed state hospital in RUSE. This city has good sanitation but is located in an endemic malarial area.

CONSTANTA (population 1939: 61,412). CONSTANTA is in the southeastern part of RUMANIA. It is the chief BLACK SEA port of that section. Among the chief exports are oil from PLOESTI and grain from the DOBRUJA and other RUMANIAN areas. The harbor is an artificial one built behind a well maintained breakwater. It is capable of handling vessels up to 20 to 24 feet draft. Loading equipment for coal, timber, grain, oil, and general cargo is present. There is a railway alongside the docks for efficient transhipment. An excellent highway running southwest from the city runs to BUCURESTI via TURTUCAIA. Another part of this highway runs to RUSE. There is a main highway connecting CONSTANTA with VARNA. An oil pipeline runs to CONSTANTA from the interior. This city is the eastern terminus of trunk railroads running from BUCURESTI and VARNA.

1The material in this appendix was derived promarily from JANES, Bulgaria, Volumes 1,2, and 3 (Washington, D.C.: Joint Intelligence Study Board, 1943). Other sources containing information of value are: Routes Into Europe, Parts I and V, The Field Artillery Journal (Washington, D.C.: U.S. Field Artillery Association, June and September 1943); Terrain Intelligence, Bulgaria, Volume 2 (Washington, D.C.: Chief of Engineers, 1943); Strategic Study of Greece, Part I and II (Washington, D.C.: Intelligence Division, Department of the Army, 1950).

APPENDIX V

ENEMY STRENGTH AND DISPOSITION

Beachhead area. The enemy strength known to be in the beachhead area at the present is 35 divisions (all types). Those divisions comprise the fighting elements of the Soviet 17th, 21st, 22d Armies, the Soviet 5th Mechanized Army, the Bulgarian 3d Mechanized Army, and the Soviet 2d (Border) Cavalry Corps.

In addition to the divisions in each of the conventional (rifle) type armies, there are an estimated 13 separate brigades, regiments, and battalions (combat, all types), with necessary service units, in the area.

The above units are all believed to be subordinate to the IX Army Group, whose headquarters is located in BUCURESTI.

The Soviet's 19th Tactical Air Army, with headquarters in BUCURESTI, is in support of IX Army Group.

The 12th Bulgarian "Hommel-Dorf" (Security Police) Division has its headquarters in TERNOVO and can be expected to cause considerable resistance among the civilian populace in the area. The Division, however, is not equipped or trained for other than small unit and police actions. At full strength the Division has 10,000 officers and men.

The only known airborne unit in the area was the 3d Airborne (Special Troops) Brigade which was practically wiped out to a man in the PLOVDIV raid by the USAF on 3 June 195_.

There are an estimated 19 "Civilian Forces" groups in the area. These groups range in size from 50 to 100 men and are capable of only small unit and delaying actions.

Corps zone. The known enemy strength in the corps zone is 12 divisions. These divisions are elements of the Soviet 17th Army, the 3d Bulgarian Mechanized Army, and Ninth Army Group.

Of the 12 identified divisions in the corps zone, two are subordinate to Ninth Army Group. They are the 33d Artillery Division and the 5th Cavalry Division. Only the latter is 100% effective. The 33d Artillery Division having been in close support of the XX Corps (17th Army) since 2 June has sustained approximately 40% casualties in personnel and equipment. The ten remaining divisions identified in the corps zone are the 2d Rifle Division, 7th Rifle Division, 14th Rifle Division, 15th Mechanized Division (XX Corps), 8th Rifle Division, 22d Mechanized Division (XXI Corps), 31st Rifle Division (X Corps), 7th Bulgarian Tank Division, 9th Bulgarian Mechanized Division (VI Corps), and 3d Bulgarian Tank Division (IX Corps). The units listed are estimated to be at from 70% to 80% strength in personnel and equipment with the exception of the 3d Bulgarian Army divisions. These are estimated to be at approximately 90% strength, the latter having been committed on 16 June.

Previously identified elements of the Soviet 17th Army and the 3d Bulgarian Mechanized Army are the 4th Rifle Division (XXI Corps), 18th Rifle Division, 30th Rifle Division (X Corps), and

5th Mechanized Division (IX Corps) of the 3d Bulgarian Mechanized Army. All of these divisions were identified in the lines by D / 5 and are known to have been withdrawn by D / 10. Order of Battle Report No. 14, Headquarters, First U. S. Army reports these units as having suffered as high as 90% losses in both personnel and equipment due to the A-Bomb raid by the Soviet Air Forces on 7 June 195_. It was further stated in this OB report that the reason for the bombs falling on the Soviet lines was due to a mechanical failure in the bomb sights of the control plane of the flight. It was further estimated that refitting and reorganization of these units would require a minimum of six months.

Units in contact. Within the corps zone, the identified units in contact are the Soviet 2d Rifle Division, 7th Rifle Division, 15th Mechanized Division, 22d Mechanized Division, Bulgarian 7th Tank Division, and 9th Mechanized Division. The Ninth Army Group's 33d Artillery Division is supporting XX Corps.

Reserves. Of the two known armies in the corps zone the following divisions are in corps or army reserve: The 14th Rifle Division (XX Corps Reserve), the 8th Rifle Division (XXI Corps Reserve), the 31st Rifle Division of X Corps (17th Army Reserve), and the 3d Tank Division of IX Corps (3d Bulgarian Army Reserve), thus giving a total of three rifle divisions and one tank division in local reserve.

IX Army Group Reserve. Only the 2d (Border) Cavalry Division has been located and identified as part of Ninth Army Group

Reserve. It is believed, however, that the Ninth Army Group can reinforce its present positions at any time with an additional fifle division, a tank division, a cavalry division, and two separate brigades of self-propelled artillery.

Reinforcements. The enemy can reinforce his present units by D / 20 with an additional rifle corps (three rifle divisions and a mechanized division) and one artillery division. By D / 35, with two rifle corps, a mechanized army, and an artillery corps. It should be understood that these estimates have taken into consideration delays or losses which would be suffered from allied air raids.

Locations and dispositions. (See Chart, Figure 10)

Organization and equipment. (See Charts, Figures 11, 12 and 13)

Air capabilities. First US Army G-2 estimates the enemy is capable of 200 fighter and 60 bomber sorties daily in the beachhead area. Of these, 20 fighter and 20 bomber sorties may be conducted during the hours of darkness.

1st Army G-2 has been informed by XII Air Force Intelligence that all known guided missile ramps capable of firing in the beachhead area have either been destroyed or severely damaged.

Morale and combat efficiency. The morale in units not affected by atomic bomb raids is considered to be excellent. Morale within those units subjected to atomic attacks has decreased steadily and is estimated to be only fair. The combat efficiency

of all units is considered excellent. About 60% of the men and 80% of the officers are veterans of World War II and/or early fighting in World War III. The morale of the 3d Bulgarian Army is as high if not higher than the Soviet forces. This unit served for a period of four months on the Western Front in the early days of the war and won many honors. Its officers and men were chosen for their political expressions, intelligence, and experience in combat (World War II). The 3d Bulgarian Mechanized Army is the "elite" of the Bulgarian Army.

Supply and hospitalization. Although many of the supply installations have been destroyed and their supply lines cut in several places by the XII Air Force, there is no appreciable shortage of supplies by the front line units. It has been reported, however, that there are not more than five atomic bombs available to the enemy at this time. There is a shortage of equipment and medicines for treatment of casualties in this area.

Replacements. The few replacements available to the enemy forces are men from units which have been hard hit elsewhere and now are being deactivated. Although replacements are few, they are experienced men.

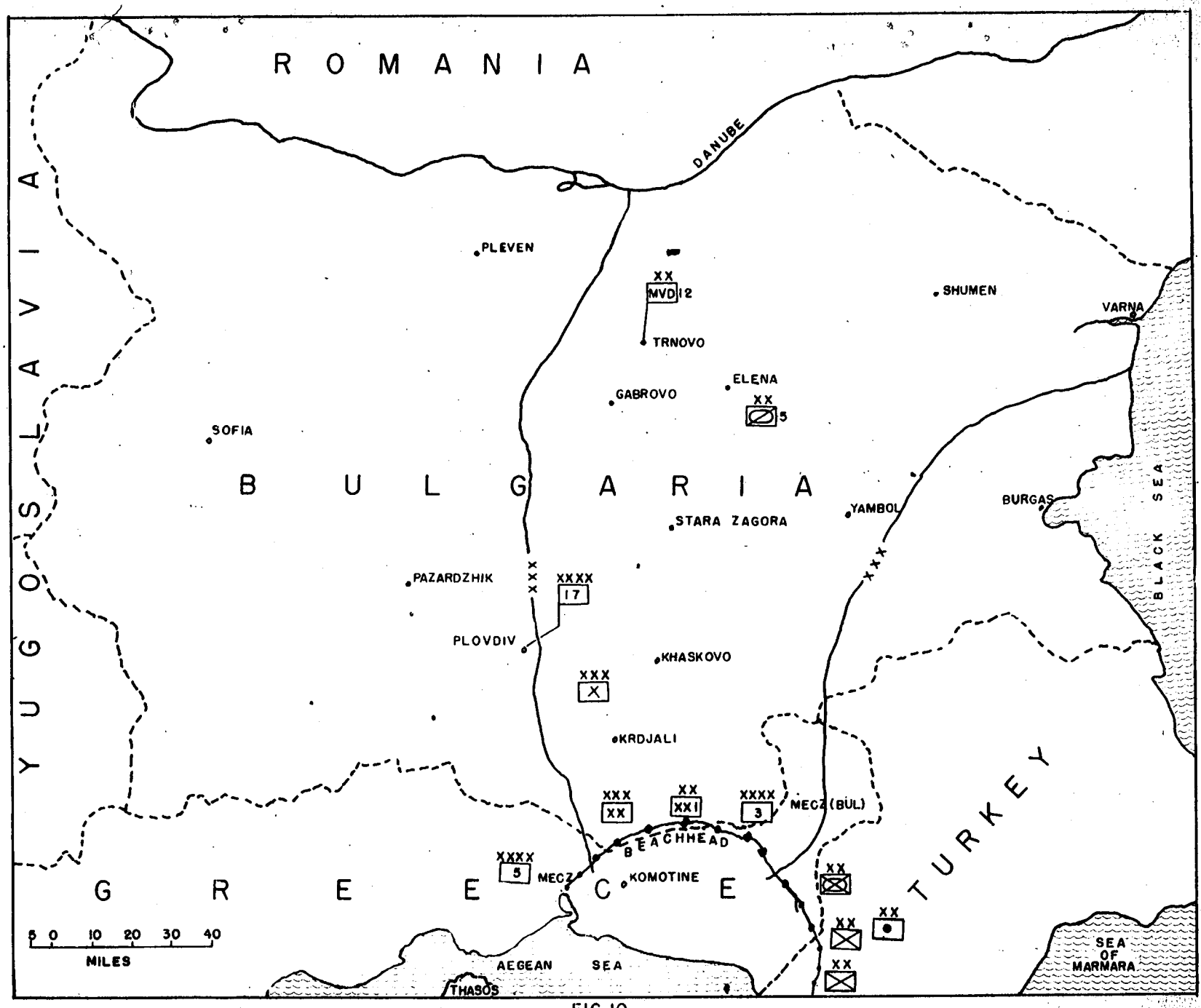
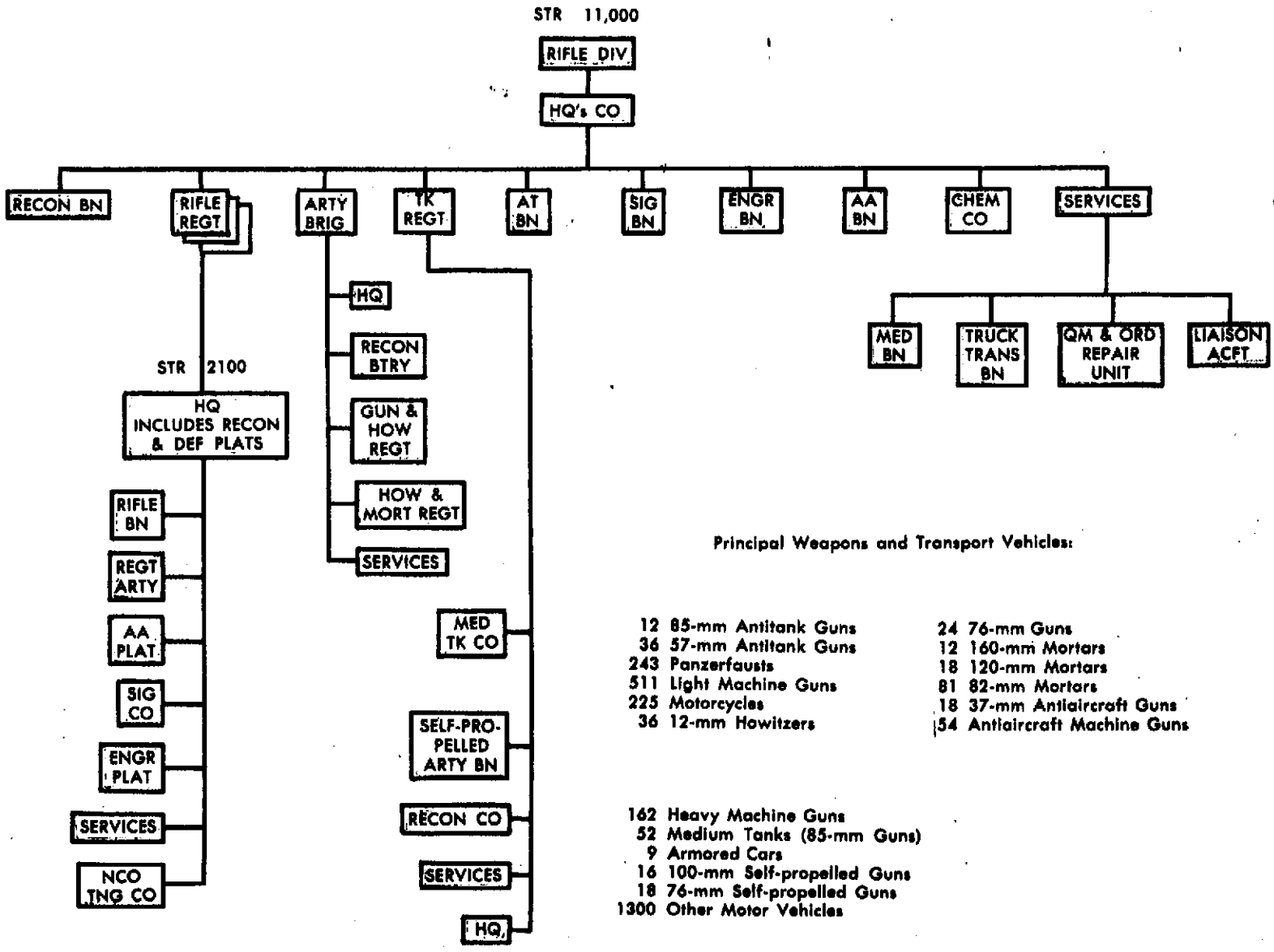


FIG 10
ENEMY DISPOSITION

[redacted] INFORMATION

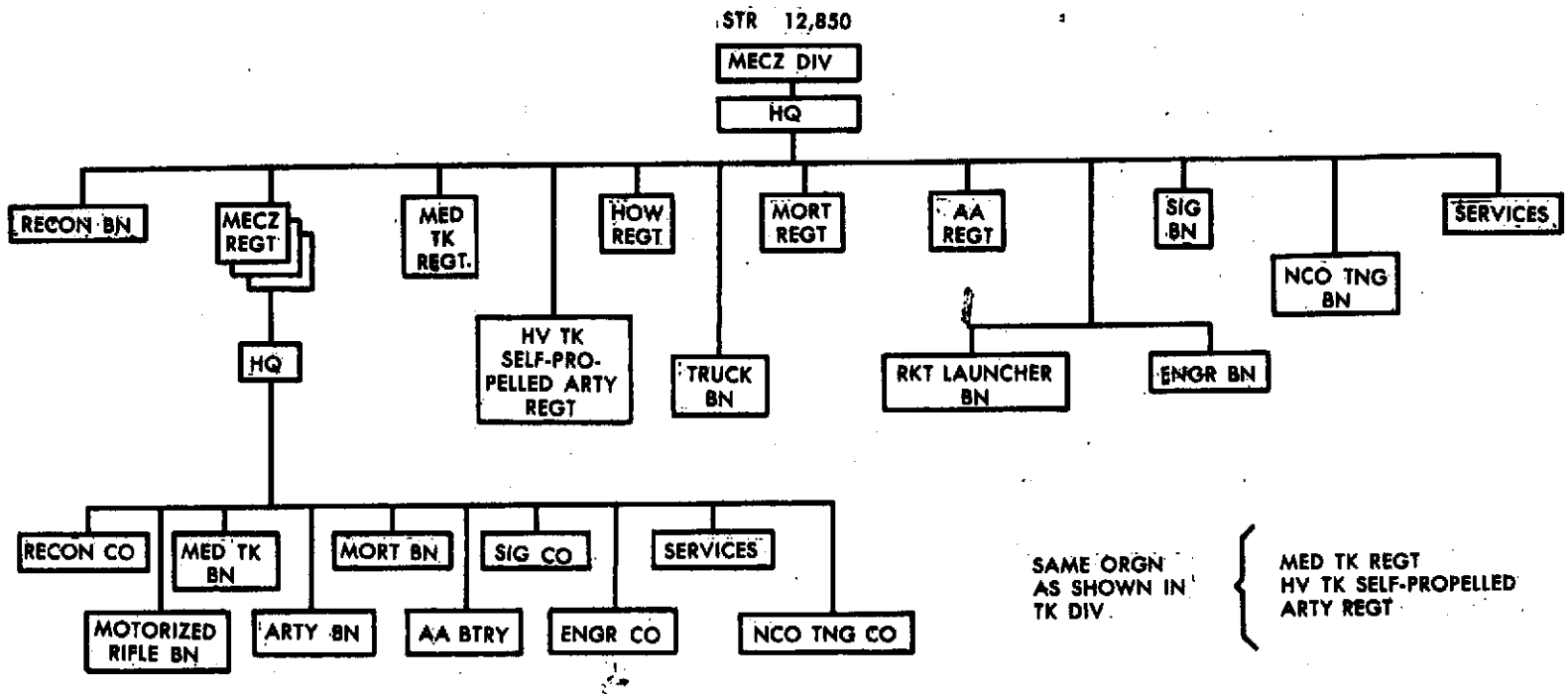
UNCLASSIFIED



Principal Weapons and Transport Vehicles:

12 85-mm Antitank Guns	24 76-mm Guns
36 57-mm Antitank Guns	12 160-mm Mortars
243 Panzerfausts	18 120-mm Mortars
511 Light Machine Guns	81 82-mm Mortars
225 Motorcycles	18 37-mm Antiaircraft Guns
36 12-mm Howitzers	54 Antiaircraft Machine Guns
162 Heavy Machine Guns	
52 Medium Tanks (85-mm Guns)	
9 Armored Cars	
16 100-mm Self-propelled Guns	
18 76-mm Self-propelled Guns	
1300 Other Motor Vehicles	

Figure 2



Principal Weapons and Transport Vehicles:

23 Heavy Tanks (122-mm Guns)
138 Medium Tanks (85-mm Guns)
39 Armored Cars
42 152-mm, Self-propelled Gun Howitzers

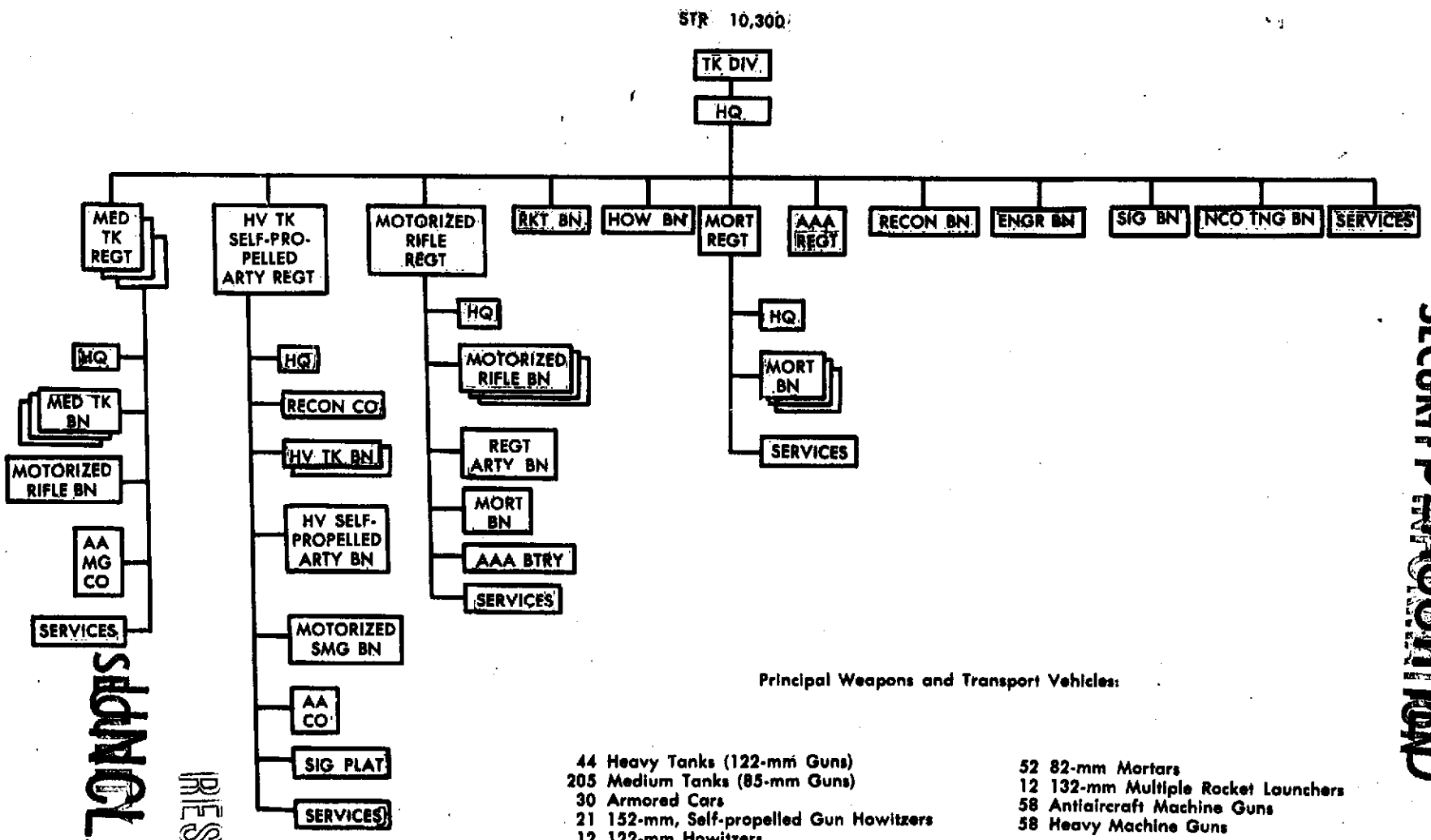
24 122-mm Howitzers
36 76-mm Guns
32 57-mm Antitank Guns
22 37-mm Antiaircraft Guns
54 120-mm Mortars

82 82-mm Mortars
12 132-mm Rocket Launchers
58 Antiaircraft Machine Guns
82 Heavy Machine Guns

516 Light Machine Guns
39 Armored Personnel Carriers
300 Motorcycles
1879 Other Motor Vehicles

Figure [illegible]

RESTRICTED
SECURITY INFORMATION
UNCLASSIFIED



Principal Weapons and Transport Vehicles:

44 Heavy Tanks (122-mm Guns)
205 Medium Tanks (85-mm Guns)
30 Armored Cars
21 152-mm, Self-propelled Gun Howitzers
12 122-mm Howitzers

12 76-mm Guns
28 57-mm Antitank Guns
22 37-mm Antiaircraft Guns
42 120-mm Mortars

52 82-mm Mortars
12 132-mm Multiple Rocket Launchers
58 Antiaircraft Machine Guns
58 Heavy Machine Guns

405 Light Machine Guns
8 Armored Personnel Carriers
290 Motorcycles
1360 Other Motor Vehicles

Figure # 13

ORGANIZATION AND EQUIPMENT

There are two types of Soviet armies: The conventional army, consisting of several rifle corps with appropriate support; and the mechanized army. The latter normally has two tank and two mechanized divisions, together with army troops. On a full T/O basis, the strength of the mechanized army is in the neighborhood of 65,000 men.

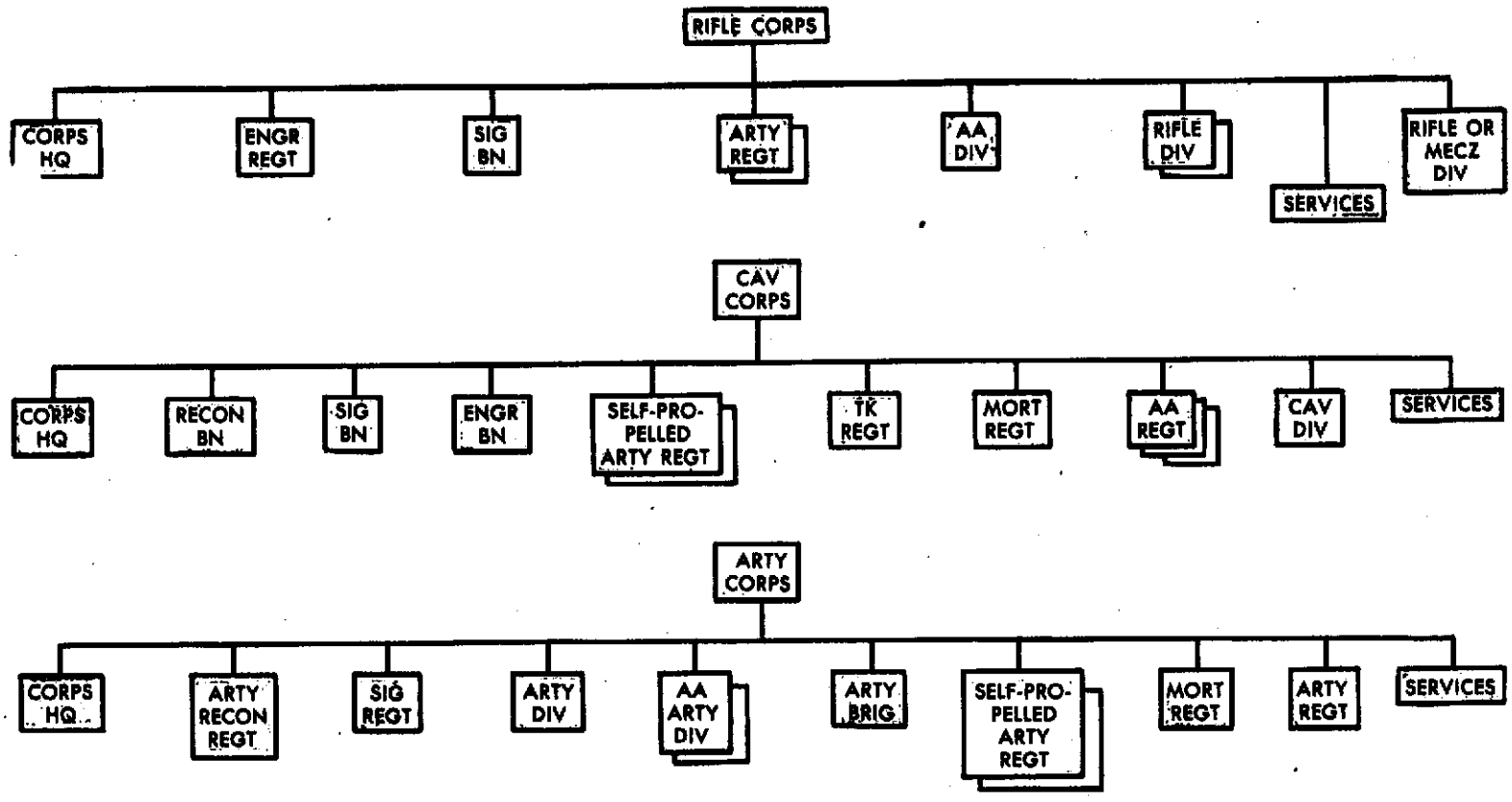


Figure 14

APPENDIX VI

TROOP LIST, I ARMORED CORPS

1st Armd Div

2d Armd Div

3d Armd Div

1st Inf Div

1st Armd Cav Regt

12th Armd Cav Group

2d Engr Brigade

3d Engr Brigade

Corps Artillery

600th FA Group

601st FA Group

602d FA Group

603d FA Group

604th AAA Group

605th AAA Group

321st Cml Mort Bn

100th Quartermaster Group

32d Signal Battalion

35th Transportation Truck Bn

36th Transportation Truck Bn

37th Transportation Truck Bn

38th Transportation Truck Bn

APPENDIX VII

I ARMORED CORPS OPERATION ORDER

I Armd Corps
SAPAI, GREECE
250700 June 195_

OPN 0 7

Maps: THE BALKANS, 1:250,000; sheets, DRAMA, PLOVDIV, HASKOVO, EDIRNE, BURGAS, AHTOPOL, VARNA, SHUMEN, SLIVEN, TERNOVO, PLEVEN, CRAIOVA, BUCURESTI, CONSTANTA. MIDDLE EAST, 1:500,000; sheets, EDIRNE, ISTANBUL.

1. a. Annex 1, Intel. (Omitted)

   b. (1) First Army with XII, XIII, XIV Corps Atk N (date) and breaks out of bhd.

   (2) Ninth TAF cooperates.

   (3) Annex 2, Opn Overlay. (Omitted)

2. I Armd Corps prepares to atk through XIII Corps on O to seize crossings over DANUBE RIVER and ports of CONSTANTA and VARNA.

3. a. 1st Armd Div:

   (1) Atk on O axis KERDZHALI-HASKOVO-POPOVITSA-STARA ZAGORA-KAZANLIK-TERNOVO-BELA to seize crossings over DANUBE RIVER vic RUSE.

   (2) Maintain contact 1st Armd Cav Regt on W and 2d Armd Div. on E.

   b. 2d Armd Div:

   (1) Atk on O axis EDIRNE-ELHOVO-YAMBOL-ORMORTAG-SHUMEN-N to seize crossings over DANUBE RIVER vic TURTUCAIA and SILISTRA.

(2) Maintain contact 1st Armd Div on W.

c. 3d Armd Div:

(1) Follow 2d Armd Div on Corps O.

(2) Be prepared to atk E and N from SHUMEN to capture ports VARNA and CONSTANTA.

(3) Maintain ln 2d Armd Div.

d. Corps Arty:

(1) 600th FA Gp: D/S 1st Armd Div.

(2) 601st FA Gp: D/S 2d Armd Div.

(3) 602d FA Gp: G/S initially. Be prepared D/S 3d Armd Div when committed.

(4) 603d FA Gp: G/S

(5) 604th AAA Gp: Protect assy areas, corps res, engr brg park, corps arty, 1st Armd Div brg site on DANUBE RIVER.

(6) 605th AAA Gp: Protect corps zone, 2d Armd Div brg site on DANUBE RIVER, ports CONSTANTA and VARNA.

(7) Annex 3, arty. (Omitted)

e. 1st Armd Cav Regt:

(1) Be prepared to protect corps left flank on Corps O.

(2) Maintain contact with 1st Armd Div on E.

f. Corps Engr:

(1) 2d Engr Brig:
(a) Spt atk 1st Armd Div.

(b) Construct hv brg vic: to be announced.

(c) Maintain corps road net within asgd zone.

(2) 3d Engr Brig:

(a) Spt atk 2d Armd Div.

(b) Construct hv brg vic: to be announced.

(c) Maintain corps road net within asg zone.

(3) Annex 4, Engr. (Omitted)

g. Corps Res:

(1) 1st Inf Div: Move to res assy area on Corps O. Be prepared to spt 3d Armd Div atk on ports of VARNA and CONSTANTA. Maintain ln 1st, 2d, and 3d Armd Divs.

(2) 12th Armd Cav Gp: Move to corps res assy area on O.

(3) 321st Cml Mort Bn: Move to corps res assy area on O.

x. (1) All areas N of First Army present front lines are hv mined.

4. Army Admin O ___, Corps Admin O 12.

5. Annex 5, Sig Index 9, SOI. Rad silence until further O.

REHKOPF
Lt Gen

ANNEXES: 1-Intel (Omitted)
2-Opn Overlay (Omitted)
3-Arty (Omitted)
4-Engr (Omitted)
5-Sig (Omitted)

DISTR: A
XII Corps
XIII Corps
XIV Corps
Ninth TAF

OFL:

(s) HAYDEN
G-3